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Family Scomberomoridae

Body well elongated and compressed. Head small and compressed. Snout rather long. Eye advanced in head. Maxillary extends well below or beyond eye. Teeth in jaws large, compressed, strong. Gill rakers few or small, 9 or 10 below, sometimes absent. Scales small or absent, corselet seldom distinct. Lateral line distinct, complete, variously branched. Fins ^{with} long bases, low, caudal large. Fintlets well developed, 7 to 9 behind dorsal and anal. Paired fins small.

Analysis of Genera

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a. Gill rakers present; gill filaments filamentous.

b. Scomberomorinae. Scales small or absent; ventrals small or very short.

c. Body elongated; teeth in jaws trenchant, present on vomer.

d. Lateral line single.

e. Dorsal spines 12, finlets 4 or 5.

Lepidocybium.

e. Dorsal spines 16, finlets 9 or 10.

Scomberomorus.

d. Lateral line double. Grammatosynus.

c. Body plump, teeth in jaws with edges rounded; no vomerine teeth.

f. Body naked outside corselet; tongue and palatines with villiform teeth. Gymnosarda.

f. Body entirely scaleless; tongue toothless. Sarda.

b. Gasterochisminae. Scales large; ventrals long, adnate by membrane with belly. Gasterochisma.

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a. Acanthocybinae. 20 gill rakers;
gill filaments reticulate basally.
Acanthocybium.

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Genus Lepidocybium Gill

Lepidocybium Gill, Proc. Acad.
Nat. Sci. Philadelphia, (1862),
p. 126, (Type Cybum flavo-
brunneum Andrew Smith,
orthotypic.)

Body elongately ovate, compressed.
Head conic, compressed. Snout
conic. Eye moderate, slightly
advanced in head. Jaws about
equal in front, lower slightly more
than half of head. Maxillary
reaches below eye, expanded
behind. Teeth in jaws uniserial,
upper smaller and cylindrical.
Nostrils double, near last
fifth in snout. Scales small,
feeble. Strong keel along each

Foa fo Jordan and Seale, Proc. U. S. Nat. Mus., vol. 28, 1905, p. 779. Negros and Cavite; Bull. Bur. Fisher., vol. 25, 1905 (1906), p. 248, fig. 42 (Apia, Samoa and Philippines); vol. 26, 1906 (1907), p. 17 (Cavite).

Apogonichthys fo Jordan and Richardson, Bull. Bur. Fisher., vol. 27, 1907 (1908), p. 255 (Iloilo); Mem. Carnegie Mus., vol. 6, no. 4, 1909, p. 181 (Takao, Formosa).

Foa vauulal Jordan and Seale, Bull. Bur. Fisher., vol. 25, 1905 (1906), p. 249, fig. 43. Apia, Samoa.

Apogon ocellatus

side of caudal peduncle.

First dorsal low, with 12 short spines, second fin with moderate lobe in front followed by 5 finlets. Anal like second dorsal, begins nearly opposite its middle and followed by 4 finlets. Caudal rather small, forked. Paired fins small, pectoral placed rather low, ventral inserted below pectoral base.

One species in South Africa, differing from Scamberomorus chiefly in its reduced finlets and dorsal spines.

Lepidocybium flavobrunneum
(Andrew Smith)

Cybrum flavobrunneum Andrew
Smith, Illustrat. Zool. South Africa,
Pisces, no pagination, pl. 20, 1849
(type locality, seas about the Cape
of Good Hope). — Weber, Abhand.
Senckenberg. Nat. Ges. Frankfurt-a-
-Maine, vol. 34, p. 31, 1911 (Aru Islands).
Cybrum flavobrunneum Günther,
Cat. Fish. Brit. Mus., vol. 2, p. 373,
1860 (type). — Bleeker, Nat. Tijds.
Ned. Indie, vol. 21, p. 53, 1860
(reference).

Scomberomorus flavobrunneus
Barnard, Ann. South Afric. Mus.,
vol. 21, pt. 2, p. 802, October 1927

~~not a new species~~

Depth $2\frac{1}{4}$ to $2\frac{1}{3}$; head $2\frac{1}{3}$ to $2\frac{1}{4}$, width $1\frac{7}{8}$ to $2\frac{1}{8}$. Snout $3\frac{7}{8}$ to 4 in head from snout tip; eye $3\frac{1}{10}$ to $3\frac{1}{3}$, greater than snout or interorbital; maxillary reaches hind eye edge or slightly beyond, expansion $1\frac{3}{5}$ to $1\frac{3}{4}$ in eye, length $1\frac{3}{5}$ to $1\frac{2}{3}$ in head; teeth villiform, in bands in jaws, on vomer and palatines; interorbital 4 to $4\frac{1}{4}$, nearly level; preopercle edge and ridge entire. Gill rakers 4 + 10, lanceolate, upper and lowermost 3 or 4 low rudiments, slightly longer than gill filaments or $2\frac{1}{2}$ in eye.

Scales 18 or 19 in lateral line to caudal base and 2 or 3 more on latter; anteriorly lateral line of only 8 or 9 tubes, not extending beyond soft dorsal; 1 scale above lateral line,

Depth $4\frac{3}{5}$; head $3\frac{3}{5}$. Snout ²²
 $2\frac{3}{4}$ in head; eye $4\frac{7}{8}$, $1\frac{3}{4}$ in
snout; maxillary reaches $\frac{1}{3}$
in eye, expansion 2 in eye,
length $2\frac{1}{4}$ in head; 2 large fangs
curving backwards little behind
front of upper jaw on front
part of palate; interorbital
low.

Sides of head behind scaly.
D. IX - $22? + 5$, soft dorsal
height $2\frac{1}{2}$ in head; A. $15 + 4$,
fin height $2\frac{2}{5}$; caudal $1\frac{2}{5}$;
least depth of caudal peduncle
7; pectoral $2\frac{1}{4}$; ventral $2\frac{1}{5}$.

Light chestnut-brown or
yellowish brown. Head and
fins deep reddish brown. Sides
of lower jaw and gill covers
silvery. Lower part of sides

paler below. Body mottled, speckled or blotched with darker, usually pale spot variably resulting on each body scale. Round black blotch on opercle large as pupil, ocellated with narrow pale brown margin. Iris brown, with gray to slate tints. Lips all barred with deeper brown. Fins dull grayish or brownish and except clear pectorals all more or less barred with brown, often with somewhat waved or irregular aspect. Many examples show about 10 or 11 dark transverse brown bands, variably mottled, spotted or speckled, and markings equally variable in areas off cross bands.

Red Sea, Zanzibar, Mauritius, Seychelles, India, Andamans, East Indies, Philippines, Queensland, Micronesia, Polynesia.

and under parts lighter than
back, with flesh red tinge.
Length 610 mm. (Andrew Smith.)

South Africa, ^{East Indies} Smith does
not mention or show an lateral
line. Barnard gives: depth $4\frac{1}{2}$;
head $3\frac{2}{3}$. Eye 5 in head. d.

XII - 17 + 5; a. II, 13 + 4. ~~spines~~

pores to caudal base, variably complete; 1 or 2 scales above lateral line, 6 below, 5 or 6 predorsal, 3 rows cover cheek. Tubercles of lateral line large, well exposed, each with slight basal scale. Scales with 15 to 17 basal radiating striae; 66 to 148 apical denticles, with 4 to 5 transverse series of basal elements; ~~and~~ circuli very fine.

D. VII - I, 8, I, third spine $2\frac{1}{5}$ to $2\frac{1}{3}$ in total head length, second ray $1\frac{4}{5}$ to 2; A. II, 8, I, second spine 3 to $3\frac{1}{2}$, second ray 2 to $2\frac{1}{5}$; caudal $1\frac{1}{3}$ to $1\frac{2}{5}$, rounded convexly behind; least depth of caudal peduncle $2\frac{1}{8}$ to $2\frac{1}{4}$; pectoral $1\frac{2}{5}$ to $1\frac{3}{5}$; ventral $1\frac{3}{5}$ to $1\frac{3}{4}$.

Brown, ground color but slightly

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Genus Scomberomorus Lacépède

Scomberomorus Lacépède, Hist. nat. Poiss., vol. 3, (1802, p. 292) (Type Scomberomorus plumieri Lacépède = Scomber regalis Bloch, monotypic.)

Polipturus Rafinesque, Analyse de la nature, (1815, p. 84,) (Type Scomberomorus plumieri Bloch, ^{virtually,} as

Polipturus Rafinesque proposed to replace Scomberomorus Lacépède.)

Cybius Cuvier, Règne animal, vol. 2, (1817, p. 120,) (Type Scomber commersonii Lacépède, designated by Gill, Proc. Acad. nat. Sci.

Philadelphia, (1862, p. 126.)

Apodontes Bennett, Proc. Comm.

Zool. Soc., London, vol. 1, (1831, p. 169.)

(Type Apolectus immunis Bennett, monotypic.)

Chriomitra Lockington, Proc. Acad.
Nat. Sci. Philadelphia, (1879) p. 133,
(Type Chriomitra concolor Lockington,
monotypic.)

Sierra Fowler, Proc. Acad. Nat.
Sci. Philadelphia, (1904) p. 766,
(Type Cybiium cavalla Cuvier,
orthotypic.)

Sawara Jordan and Hubbs, Mem.
Carnegie Mus., vol. 10, no. 2, June 27,
1925, p. 214, (Type Cybiium nipponium
Valenciennes, orthotypic.)

Body elongated, well compressed, tail usually much longer than trunk. Head small or moderate, pointed, compressed. Snout conic. Eye small, premedian or advanced, without adipose lids. Mouth large. Maxillary reaches below or beyond eye. Teeth in jaws large, compressed, curved inward with trenchant edges. Vomer with villiform teeth. Hind nostril elliptical. Gill rakers short, 2 to 10 below. Vertebral 18 to 22 + 22 to 30. Air bladder present or absent. Scales thin, small, sometimes absent. ~~outside complete~~. Lateral line complete, variously undulate, sometimes drops below body axis on tail and sometimes with numerous, short, accessory branches. Dorsal spines low, short, 14 to 19, graduated shorter behind. Soft

regius, Lethrinus, 5.

resplendens, Johnius, 376.

reticulatus, Lethrinus, 6, 18, 19.

Rhabdosargus, 175, 178.

Rhinoscion, 370.

epipercus, 370.

rhodopterus, Lethrinus, 21.

rhombeus, Gerres, 238.

richardsoni, Lethrinus, 28, 45.

richardsonii, Lethrinus, ¹³20, 28.

Lethrinus, 28.

Tephreops, 197, 198.

richii, Diapterus, 253.

Gerres, 253.

rivulatus, Dentex, 118, 129, 133, 134.

robinsoni, Chrysophrys, 158.

¹²⁹
Dentex, 133.

Gymnoeranius, 130, 133.

Hoplegnathus, 223.

Oplegnathus, 217, 223.

Sciaena, 408, 409.

Sparus, 150, 151, 158, 160.

Umbrina, 409.

robusta, Sillago, 423.

robustus, Nemipterus, 98.

rondeleti, Diplodus, 176.

dorsal and anal small, slightly²²⁷
higher than first dorsal, followed
by 7 to 9 finlets. Caudal moderately
large, widely forked. Pectoral
short, pointed or rounded. Ventral
very small.

A large group of gregarious
fishes, moving in shoals in
tropical and temperate seas.
Among the choicest of food fishes
they are of commercial importance
in many countries. Their flesh
is of delicate fatty structure
and usually with excellent flavor.

Scarodon, 224.

Sillago, 416.

punctulatus, Lethrinus, 6, 43.

puniceus, Chrysophrys, 166.

Puntazzo, 65, 179.

annularis, 179.

puntazzo, 179.

puntazzo, Charax, 179.

Puntazzo, 179.

Sparus, 179.

<slu>
queketti, Upeneus, 265.

<slu>
rabaïi, Holocentrus, 161.

radiatus, Mullus, 305.

rafflesii, Leiopsis, 69.

Raius tumifrons, 123.

ramak, Lethrinus, 7, 9, 47, 63.

Lethrinus, 48.

Sciaena, 47.

Sparus, 47.

ramsayi, Girella, 192.

rappi, Gerres, 228, 246.

Xystaema, 227, 246.

rathbunae, Laramichthys, 362, 363.

raynaldi, Pimalepterus, 212.

reevesii, Otolithus, 357, 358.

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Scomberomorus croockewiti (Bleeker)

Cybium croockewiti Bleeker, Nat. Tijds.
hed. Indie, vol. 1, p. (160) 161, 1850

(type locality, Banka Straits near
Muntok); Verh. Batavia. Genoot.
(makreel.), vol. 24, p. 37, 1852

(Banka Straits); Nat. Tijds. hed.
Indie, vol. 3, p. 445, 1852 (Banka);

vol. 9, p. 282, 1855 (Macassar). —

Günther, Cat. Fish. Brit. Mus., vol. 2,

p. 372, 1860 (copied).

Cybium croockewiti Martens, Preuss. Exped.
Ost Asien, vol. 1, p. 390, 1876 (Singhawang, Borneo).

Depth 6, body elongately compressed;
head $6\frac{1}{2}$, depth $1\frac{1}{4}$. Rostral frontal
profile concave; eye 5 in head,
2 in snout; maxillary reaches
below eye posteriorly; maxillary
teeth 13 each side, mandibular
teeth 9 to 11.

Lateral line below dorsal

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finlets curved, weakly undulate,
with rounded, oblong, posterior
keel, entirely scaly.

D. XV VII, 17+7, spines twice
long as rays, which lower than
body; A. VI, 28+7, higher than
dorsal; caudal lobes curved, $4\frac{1}{2}$
in body; pectoral $1\frac{1}{2}$ in head,
acute, twice longer than ventral,
rays II, 18; ventral rays I, 5.

Body above deep coerulean,
below silvery clouded with gray.
Broad black band from dorsal
to anal, on sides diffused as
blackish spots. Spinous dorsal
all black. Ventral gray brown,
other fins brownish. Length
450 mm. (Bleeker.)

East Indies. A doubtful and
little known species.

Analysis of Species

- a.¹ Lateral line simple; air bladder present.
- b.¹ Cybiwm. Pectorals pointed; body with dark transverse or longitudinal streaks.
- c.¹ Gill rakers 1+2; 18 to 20 dark transverse streaks. Commerson.
- c.² Gill rakers 2+8 to 11; variable short dark gray longitudinal streaks. lineolatus.
- b.² Lobocybiwm, new subgenus. Pectorals large and rounded; body with indistinct dark spots in 1 or 2 rows. sinensis.
- a.² Sawara. Lateral line with numerous, fine, short branches; no air bladder.
- d.¹ Tongue toothed; lateral line slightly undulating.
- c.¹ Depth equals head; second dorsal long. guttatus.
- c.² Depth much greater than head. boreanus.
- d.² Tongue toothless; lateral line with prominent curve. niphonius.

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Scomberomorus commerson (Lacépède)

Scomber commerson Lacépède, Hist.
Nat. Poiss., vol. 2, pp. 598, 600, pl. 20, fig.
1, 1800 (no type locality).

Scomber commersoni Schneider, Syst.
Ichth. Bloch, p. 545, 1801 (South Sea).

Cybinus commersonii Rüppell, Atlas
Reise nördl. Afrika, Fische, p. 94,
pl. 25, fig. 1, 1828 (Massana). —
Cuvier, Règne Animal, ed. 2, vol. 2,
p. 120, 1829; Hist. Nat. Poiss., vol.
8, p. 165, 1831 (Pondicherry; Malabar;
Mauritius). — Rüppell, Neue
Wirbelth., Fische, p. 41, 1835 (Red
Sea). — Jordan, Madras Journ.
Lit. Sci., p. 136, 1851. — Günther,
Cat. Fish. Brit. Mus., vol. 2, p. 370,
1860 (Malay Peninsula; Cape Seas).

- Day, Fishes of Malabar, p. 69, 1865.
- Playfair, Fishes of Zanzibar, p. 67, 1866 (Zanzibar). — Martens, Verh. zool. bot. Ges. Wien, vol. 16, p. 378, 1866 (Merias Island, Red Sea).
- Klunzinger, Verh. zool. bot. Gesell. Wien, vol. 21, p. 444, 1871 (Red Sea).
- Day, Fishes of India, pt. 2, p. 255, pl. 56, fig. 5, 1876. — Klunzinger, Fische Roth. Meer, vol. 1, p. 112, 1884.
- Boulenger, Proc. Zool. Soc. London, p. 662, 1887 (Muscat). — Day, Fauna British India, Fishes, vol. 2, p. 211, fig. 74, 1889. — Sauvage, Hist. Nat. Madagascar, Poiss., p. 320, 1891.
- Károli, Termesz. Füzetek, Budapest, vol. 5, p. 162, 1881 (Singapore).
- Gilchrist and Thompson, Ann. South African Mus., vol. 6, pt. 3, p. 248, 1909 (Katal).

Cybius commerson Kishinouye,
 Journ. College Agric. Tokyo, vol. 8,
 no. 3, p. 416, fig. 36, March 1923
 (Taiwan, Strait of Chosen, South China).
 — Anonymous, Illustrat. Jap.
 Aquat. Animals, vol. 1, p. 27, pl. 27,
 fig. 3, 1931.

Cybius commersoni Jordan and Hubbs,
 Mem. Carnegie Mus., vol. 10, no. 2, p.
 214, June 27, 1925 (reference). —
Chabaud, Serv. Océanogr. Pêch.
 Indo Chine, 1^{re} note, p. 22, 1926
 (Gulf of Siam).

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Scomberomorus commersoni Jordan
and Seale, Bull. Bur. Fisher., vol. 26,
p. 13, 1906 (1907) (Cavite). — Barnard,
Ann. South African Mus., vol. 21, pt.
2, p. 802, Oct. 1927 (East London;
Port Elizabeth; Mossel Bay; Natal).
— Yanaka, Journ. Faculty Sci.
Univ. Tokyo, Zool., vol. 3, pt. 1, p.
22, Nov. 4, 1931 (reference).

Scomberomorus commersonii Jordan
and Dickerson, Proc. A. S. Nat. Mus.,
vol. 34, p. 610, 1908 (Suva, Fiji).
— Gilchrist and Thompson, Ann.
Durban Mus., vol. 1, pt. 4, p. 395,
May 21, 1917 (reference).

Scamberomorus commerson Fowler,
Copeia, no. 58, p. 63, June 18, 1918
(Philippines); Mem. Bishop Mus.,
vol. 10, p. 132, 1928 (compiled). —
McCulloch, Mem. Austral. Mus.,
vol. 5, pt. 2, p. 264, Sep. 10, 1929
(reference). — Fowler, Proc. Acad.
Nat. Sci. Philadelphia, vol. 86,
p. 441, 1934 (Katal); vol. 87, p. 138, ^{fig. 104},
1935 (Bangkok; Paknam).

Scamberomorus (Scamberomorus) commersoni
Deaniyagala, Ceylon Journ. Sci., vol. 18,
pt. 1, p. 40, pl. 1, fig. 1, Dec. 22, 1933
(Panadura; Tangalla).

Scomber maculosus Shaw, General
Zoology, Fishes, vol. 4, p. 592, 1803
[on Quam Russell, Fishes of Coromandel,
vol. 2, p. 27, pl. 135, 1803, type locality,
Vizagapatam). — Shaw and
Hooder, Natural Miscellany,
vol. 23, pl. 982, 1811 (Indian Seas).

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Cybinum bonam Bleeker, Nat. Tijds.
Ned. Indie, vol. 1, p. 357, 1850
(type locality, Batavia, Java);
vol. 3, p. 445, 1852 (Banka);
Verh. Batavia. Genoot. (Maatsch.),
vol. 24, p. 39, 1852 (Batavia);
(Nat. Ichth. Bengal), vol. 25, p. 42,
1853 (reference); Nat. Tijds. Ned.
Indie, vol. 6, p. 457, 1854 (Amboina);
vol. 7, p. 227, 1854 (Macassar), p. 312
(Bantem, Tjiringin), p. 361 (Batjan);
vol. 8, p. 345, 1855 (Tibol, Sumatra);
vol. 11, p. 419, 1856 (Muntok, Banka);
vol. 15, p. 242, 1858 (Singapore); vol.
21, p. 138, 1860 (Muntok, Banka);
Ned. Tijds. Dierk., vol. 2, p. 173,
1865 (Siam; compiled). — Kner,
Reise Novara, Fische, p. 144, 1865
(Manila).

Scomberomorus bonam Jordan and
Richardson, Bur. Sci. Pub. Manila,
vol. 1, p. 19, 1910 (reference).

Cybius semifasciatus Macleay,
Proc. Linn. Soc. New South Wales,
vol. 8, p. 205, July 1883 (type
locality, Lower Burdekin River,
Queensland).

Scomberomorus semifasciatus
McCulloch, Austral. Mus.
Mem., no. 5, pt. 2, p. 264, Sep. 10,
1929 (reference).

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? Cybuim tigris De Vis, Proc.
Linn. Soc. New South Wales,
vol. 9, p. 545, November 29, 1884
(type locality, Cape York,
Queensland).

Scamberomorus tigris Mc Culloch,
Mem. Austral. Mus., No. 5, pt.
2, p. 265, September 10, 1929
(reference).

Cybuim multifasciatum Kishinouye,
Sci. Gab. Ho, vol. 1, p. 9, pl. 1, ^{fig. 3,} 1915
(type locality, north coast of
Yamaguchi-ken).

14058. Sacol Island, east of Zamboanga.
September 9, 1909. Length 54 mm.

Fins same as body color, soft verticals
with more of reddish.

1 example. Sablayan, Mindoro Island.

December 12, 1908. Length 43 mm.
^{14753 and}
^{14756.} San Juanico Strait. April 13, 1908. Length ^{6 1/2 to} 7 1/2 mm.

1 example. San Miguel Harbor, Ticao
Island. April 21, 1908. Length 62 mm.

4 examples. Tataan Island, Simulac
Island, Sulu Archipelago. February 13,
1908. Length 21 to 49 mm.

2 examples. Tataan Island. February 19,
1908. Length 33 to 57 mm.

8 examples. Tataan Island. February 20,
1908. Length 21 to 43 mm.

1 example. Tilig, Lubang. July 15, 1908.
Length 41 mm.

(240)

Depth $4\frac{2}{3}$ to $5\frac{1}{5}$; head 4 to $4\frac{2}{5}$,
width $2\frac{1}{5}$ to $2\frac{3}{5}$. Snout $2\frac{3}{5}$ to
 $2\frac{3}{4}$ in head from snout tip;
eye $4\frac{1}{2}$ to $6\frac{3}{4}$, $2\frac{1}{8}$ to $2\frac{3}{5}$ in snout,
 2 to $2\frac{1}{3}$ in interorbital; maxillary
reaches opposite hind eye edge
or slightly beyond, expansion
 $1\frac{1}{2}$ to 2 in eye, length $1\frac{2}{3}$ to
 $1\frac{7}{8}$ in head from snout tip;
interorbital 3 to $3\frac{1}{10}$, low,
broadly convex. Gill rakers
 $1+2$, short, $\frac{1}{4}$ of gill filaments,
which $1\frac{1}{4}$ in eye.

Lateral line little high at
first, falls little below
middle in depth along side of
tail behind lobe of soft dorsal.
Keel along side of caudal
peduncle and one above and

another below at base of each lobe, slightly approximating behind.

D. XVI or XVII - III or IV, 13 or 14 + 9 or 10, third spine 3 to $3\frac{1}{4}$ in head, first branched ray $2\frac{3}{5}$ to $2\frac{7}{8}$; A. III, 12 or 13 + 9 or 10, first branched ray 3 to $3\frac{1}{8}$; caudal $1\frac{1}{8}$ to $1\frac{1}{5}$, widely lunate; least depth of caudal peduncle $6\frac{3}{5}$ to $6\frac{2}{3}$; pectoral $2\frac{1}{8}$ to $2\frac{1}{4}$, rays I, 20 or 21; ventral rays I, 5, fin $4\frac{1}{8}$ to $4\frac{2}{3}$ in head.

Back brown, sides and below silvery white. Sides above with 18 to 20 darker brown transverse bands, usually variably broken as short bars or spots and usually less conspicuous in

fresh specimens. Iris pale.

First dorsal black to seventh spine, rest of fin white.

Soft dorsal and caudal brownish, other fins paler to whitish.

Red Sea, Zanzibar, Natal, South Africa, India, Malaya, East Indies, Siam, China, Queensland, New South Wales, Victoria. Reaches 1220 mm (4 feet).

6980 to 6986. Manila market,
Manila, Luzon. April 14, 1909.

Length 150 to 218 mm.

^{67769 and}
^{11448.} 6770, Manila market, Manila.
^{225222 to}
April 29, 1909. Length 585 mm.

Three examples.

18441 to 18443. Manila market,
Manila. May 4, 1908. Length 188 to
207 mm.

9264. Manila market. July 10,
1908. Length 178 mm.

6706. San Roque market.
December 1, 1908. Length 530 mm.

9044. Tacloban market.
July 25, 1909. Length 442 mm.

5982. Zamboanga market.
May 26, 1908. Length 815 mm.

(One example. Rogas Point, Panay.
February 3, 1908. Length 33 mm.

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6695. Hong Kong, China. August
13, 1908. Length 220 mm.

6802. Kowloon market.
September 18, 1909. Length 335
mm.

~~74~~
U. S. N. M., No. 72633. Batavia,
Java. O. Bryant and W. Palmer.
Length 242 mm.

U. S. N. M., No. 72634. Batavia.
O. Bryant and W. Palmer. Length
177 to 229 mm. Two examples!

Scomberomorus lineolatus^s (Cuvier) 245

radiating striae; 35 to 65 apical denticles, with 1 to 4 transverse series of basal elements; ~~none~~ circuli fine.

D. VIII - I, 9, I, fourth spine $2\frac{1}{4}$ to $2\frac{4}{5}$ in total head length, ~~third~~ ray $1\frac{3}{5}$ to $1\frac{3}{4}$; A. II, 8, I, second spine 3 to $3\frac{2}{3}$, third ray $1\frac{7}{8}$ to $2\frac{1}{5}$; caudal $1\frac{2}{5}$ to $1\frac{1}{2}$, convex behind; least depth of caudal peduncle $2\frac{2}{5}$ to $2\frac{2}{3}$; pectoral 2; ventral $1\frac{4}{5}$ to 2.

Pale brown generally, with silvery reflections on side of head and body. Iris silvery white. Fins all pale, spinous dorsal with apical half blackish and soft dorsal with median brown longitudinal band, slightly arched, also soft dorsal edge above brown. Ventral with brownish dusted over anterior half of fin.

Cybum lineolatum Cuvier, Hist.

Nat. Poiss., vol. 8, p. 170, 1831

(type locality, Malabar). —

Bé langer, Voy. Indes-Orientales,

Zool., p. 366, Pl. 2, fig. 1, 1834

(no locality). — Griffiths,

Animal Kingd., Cuvier, Fishes, ^{vol. 10, p.} pl.

48, fig. 1, 1834 (on "Mangelang Russ. I, VIII, 53"). —

Bleeker, Verh. Batavia. Genoot.,

vol. 24, no. 5, p. 40, 1852 (Batavia,

Legal, Samarang, Rembang,

Pasuruan). — Günther, Cat. Fish.

Brit. Mus., vol. 2, p. 370, 1860 (part).

— Day, Fishes of India, pt. 2, p.

256, 1876; Fauna British India,

Fishes, vol. 2, p. 212, 1889. —

[Gilchrist and Thompson, Ann.

South African Mus., vol. 11, pt. 3, p.

41, October 24, 1912 (Natal; Durban).

— Boulenger, Proc. Zool. Soc. London,

1889, p. 240 (Muscat).

4382 [D. 5257]. Utara Point, Bongo Island, N. 88° W., 7.70 miles ($7^{\circ}22'12''$ N., $124^{\circ}12'15''$ E.), southern Mindanao in eastern Illana Bay. In 28 fathoms. May 22, 1908. Length 87 mm.

4544 [D. 5593]. Mt. Putri, ~~Sumatra~~ N. 52° W., 17.2 miles ($4^{\circ}02'40''$ N., $118^{\circ}11'20''$ E.), vicinity Sibuko Bay, Borneo. In 38 fathoms. September 29, 1909. Length 70 mm.

Scomberomorus lineolatum

Gilchrist and Thompson, Ann.

Durban Mus., vol. 1, pt. 4, p. 395,

May 21, 1917 (reference). — Barnard,

Ann. South Afric. Mus., vol.

21, pt. 2, p. 803, October 1927

(Natal).

Scomberomorus lineolatus ←

— Fowler, Ann. Natal Mus.,

vol. 7, pt. 3, p. 415, text fig. 7,

October 1934 (Durban); Proc.

Acad. Nat. Sci. Philadelphia,

vol. 86, p. 441, 1934 (Natal).

India, ^{East Indies,} Philippines, ^{Queensland.} Some examples
show ~~about~~ 7 broad gray transverse
bands on trunk and tail, much
wider than interspaces. Others also
have the caudal terminally with more
or less dusky.

Depth $4\frac{2}{5}$ to $4\frac{3}{4}$; head $4\frac{7}{8}$ to 5, width $1\frac{9}{10}$ to $2\frac{1}{10}$. Snout 3 in head; eye $4\frac{4}{5}$ to $5\frac{1}{2}$, $1\frac{2}{3}$ to 2 in snout, $1\frac{3}{5}$ to $1\frac{3}{4}$ in interorbital; maxillary reaches $\frac{2}{3}$ in eye or to hind eye edge, expansion $1\frac{4}{5}$ to 2 in eye, length 2 in head; teeth compressed, lanceolate, 30 to 36 above, 26 to 28 below; interorbital $2\frac{3}{4}$ to $2\frac{4}{5}$, broadly convex. Gill rakers 2 + 8 to 11, short, robust, triangular, pointed, $2\frac{1}{2}$ in gill filaments.

Scales very minute. Lateral line dorsal along back, little irregularly waved, more so below middle finlets and then with slight expanded keel along side of caudal peduncle.

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d. XVI — IV, $14 + 9$, third spine
 $2 \frac{2}{5}$ in head, third branched
ray $1 \frac{4}{5}$ to $1 \frac{7}{8}$; a. IV or V, 12 to 14
 $+ 8$ or 9 , first branched ray $1 \frac{3}{4}$
to $1 \frac{9}{10}$; caudal $3 \frac{2}{3}$ to $4 \frac{1}{8}$ in rest
of body, widely forked, slender
lobes pointed; least depth of
caudal peduncle $4 \frac{1}{4}$ to $4 \frac{1}{2}$ in
head; pectoral $1 \frac{3}{4}$; ventral
 $3 \frac{1}{8}$ to 4 .

Back brown to neutral olive,
sides and lower surfaces paler
to whitish. Along upper side of
back within pale areas of sides
variable longitudinal short
streaks or blotches of darker
gray. Spinous dorsal neutral
black. Soft dorsal brown, also
caudal. Other fins pale brown,
with gray terminally on pectoral

and anal lobe. Iris olivaceous²⁵⁰
gray.

Arabia, Natal, India, East
Indies.

A. N. S. P., two examples. Durban,
Natal. H. W. Bell Marley. 1931.
Length 395 to 443 mm. Two
examples.

Scomberomorus sinensis (Lacépède)

Scomber sinensis Lacépède, Hist. Nat. Poiss., vol. 3, 1798, p. 23 (type locality, 2, p. 599, 1800 (no type locality [China evidently intended]); vol. 3, p. 23, 1802.

Scomberomorus sinensis Jordan and Snyder, Annot. Zool. Japon., vol. 3, (1901, p. 64) (Shikoku, Nagasaki, Tokyo, Tango, Shioamoka, Okayama, Ishi-fu). — Jordan and Hubbs, Mem. Carnegie Mus., vol. 10, no. 2, June 27, 1925 (p. 214) (reference). — Tanaka, Journ. Faculty Sci. Univ. Tokyo, Zool., vol. 3, pt. 1, p. 22, November 4, 1931 (reference).

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Cybiurn chinense ^{Cuvier} Valenciennes, Hist.
Nat. Poiss., vol. 8, (1830) p. 180, (on
Lacépède). — Schlegel, Fauna
Japonica, Poiss., pts. 5-6, (1844) p. 100,
pl. 53, fig. 1, (Simabara; Figo). —
Kishinouye, Sui. Gak. Ho, vol. 1,
(1915) p. 11, pl. 1, fig. 5, Journ. College
Agric. Tokio, vol. 8, pt. 3, ^(March) 1932,
p. 418, figs. 34, 40, (Chosen, Fusan,
Chiba-ken, Akita-ken).

— Bleeker, Verh. Batavia. Genoots.
(Nat. Ichth. Japan), vol. 25, 1853, p.
14 (reference). p. 14

Scomberomorus chinensis Kishinouye,
Zool. Mag. Tokyo, vol. 20, (1908) p. 1,
pl. 2, fig. 1, &

Depth $4\frac{1}{4}$; head 4, upper profile concave. Snout $2\frac{1}{3}$ in head from snout tip; eye $9\frac{7}{8}$, 4 in snout; maxillary reaches slightly behind eye, expansion $1\frac{1}{4}$ in eye, length $1\frac{4}{5}$ in head from snout tip; teeth lanceolate, trenchant, curved inward, 20 above, 15 below, villiform teeth on vomer, palatines and tongue; interorbital high. Gill rakers $2+9$. Vertebral $18+22$.

Lateral line high above pectoral then falls little below middle before soft dorsal and anal, continued inferiorly to lateral caudal keel, its course deeply waved.

D. XVI-V, $11+8$, third spine $4\frac{2}{5}$ in total head, first branched ray 2; A. IV, $11+7$, first branched ray $1\frac{9}{10}$; caudal 1, widely forked;

olvida, 378.

papuensis, 397.

plagiostoma, 402.

platycephala, 375.

polycladiscus, 388.

polykladiskos, 388.

punctata, 352.

sampitensis, 393.

schlegelii, 396.

semiluctuosa, 404.

sina, 376, 388, 395.

soldada, 392.

soldado, 392.

trachycephalus, 406.

wolfii, 393.

yeddoensis, 395.

Corvula argentata, 369, 370, 394.

schlegelii, 395.

Coryphaena lutea, 112.

striata, 113.

crassilabris, Parupeneus, 316.

Pseudupeneus, 273, 315.

Upeneus, 315.

Crenideninae, 163.

Crenidens, 186, 200.

crenidens, 201.

forskaelii, 201.

forskali, 201.

forskalli, 200, 201.

indicus, 201.

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1

least depth of caudal peduncle $6\frac{1}{4}$;
pectoral $1\frac{2}{3}$, broadly obtuse,
rays II , 20; ventral rays I , 5,
fin $3\frac{1}{8}$ in total head length.

Back greenish blue, belly
silvery. Fins mostly blackish.
Ventrals and anal blackish-
marginally, finlets colorless.
Iris silvery, washed with light
gold. Length 2 meters.
(Kishinouye)

Japan Sea, China. Flesh
said to be too fat and more or
less of inferior quantity.

canina, 386.
 carouna, 384.
 carutta, 384.
 catalea, 375.
 celebica, 393.
 chaptis, 375.
 coitor, 405.
 comes, 383.
 cuja, 390.
 deliciosa, 370.
 dorsalis, 393.
 dussumieri, 398.
 fauvelii, 404.
 furcraea, 405.
~~goldmani, 378.~~
 goldmanni, 387.
 grypota, 405, 406.
 hypostoma, 397.
 jubata, 399.
 kuhlii, 382.
 lobata, 383.
 macrophthalmus, 376, 385.
 maculata, 381.
 miles, 393.
 nalla-katchelee, 405.
 neilli, 378.
 nigra, 370.
 nigromaculata, 375, 376.

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Scomberomorus guttatus (Schneider)

Scomber guttatus Schneider, Syst.
Ichth. Bloch, (1801) p. 23, pl. 5 (type
locality, Tranquebar).

Cybius guttatum ^{Cuvier} Valenciennes, Hist.
Nat. Poiss., vol. 8, (1831) p. 173 (Pondicherry;
Malabar; Malacca).

— Bleeker, Verh. Batavia. Genoot.
(Madura), vol. 22, (1849) p. 4 (Kammal);
Nat. Tijds. Ned. Indie, vol. 3, (1852,
p. 53, (Singapore), p. 445 (Banka);
Verh. Batavia Genoot. (Makreel),
vol. 24, (1852) p. 38 (Batavia, Samarang,
Surabaja, Pasuruan); (Nat. Ichth.
Bengal), vol. 25, (1853) p. 42 (reference);
Nat. Tijds. Ned. Indie, vol. 7, ^{p. 312} 1854,
p. 312 (Bantam; Tjirengin); vol. 8,
(1855) p. 393 (Amboina); Act. Soc.
Sci. Ind. Neerl., vol. 1, no. 3, ^{p. 9,} 1856, p.
~~7~~ (Macassar); vol. 5, no. 7, ~~1858-59~~, p.

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3¹⁸⁵⁸⁻⁵⁹
3¹⁸⁶⁰ (Sinkawang, Borneo); vol. 8
(Sumatra), (1859) p. 12, (Benculen);
Nat. Tijds. Ned. Indie, vol. 21, ~~1860~~,
p. 138¹⁸⁶⁰ (Muntok, Banka); Ned.
Tijds. Dierk., vol. 2, (1865) p. 173,
(Siam); compiled.

— Günther, Cat. Fish. Brit. Mus., vol.
2, (1860) p. 371, (China, India, Malay
Peninsula). — Day, Fishes of Malabar, p.
71, 1865. — Kner, Reise Novara, Fische, p.
143, 1865 (= no locality).
— Day, Fishes of India, pt. 2, ~~1876~~ p.
255, pl. 55, fig. 1, pl. 56, fig. 4¹⁸⁷⁶ (Canara;
Madras). — Day, ¹⁸⁷⁶ Fauna British India, Fishes,
(vol. 2, p. 210, 1889
— Károli, Jemessy, Füzetek, Budapest, vol. 5, p. 162, 1881
(Singapore; Palawan).
— Kishinouye, Journ. College Agric.
Tokyo, vol. 8, no. 3, ~~19~~ march 30, 1923,
p. 419, fig. 61¹⁹²³ (Taiwan).
— Chabanand, Serw. Océanogr. Pêch.
Indo Chine, 1^{re} note, p. 22, 1926
(Annam; Tonkin).

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Scomberomorus guttatus McCulloch,
Mem. Austral. Mus., vol. 5, pt. 2, Sep.
10, (1929) p. 264, (reference).

- Fowler, Journ. Bombay Nat. Hist.
Soc., vol. 33, no. 1, (Sep. 30, 1928) p.
108, (Bombay).

Fowler, Journ. Acad. Nat. Sci. Philadelphia,
ser. 2, vol. 12, (1904) p. 506, (Padang);
Proc. Acad. Nat. Sci. Philadelphia,
(1904) p. 766, (Padang material);
(1905) p. 498, (Barabm, Borneo).

Scomberomorus (~~Scomberomus~~ Sauvage) guttatus
Deraniyagala, Ceylon Journ. Sci., vol. 18,
pt. 1, p. 43, fig. 3, Dec. 22, 1933 (Ceylon).

mezina, Girella, 188, 195.

microdon, Collichthys, 364.

Q Dentex, 129, 132.

Gymnocranius, 129, 132.

Heterognathodon, 81.

Lethrinus, 7, 41, 61.

Otolithoides, 364.

Otolithus, 364.

Paradentex, 132.

Pentapus, 81.

Sciaena, 364.

Sciaenoides, 365.

microlepis, Cantharus, 183.

Q Caranthus, 183.

Johnius, 373, 406.

Pagellus, 183.

Pseudosciaena, 406.

Spondyllosoma, 182, 183.

miconumus, Mullus, 279.

microprion, Lobotes, 130.

micropterus, Pagrus, 142, 152.

mi-iuy, Sciaena, 395.

miles, Corvina, 393.

Q Dentex, 126.

Johnius, 393.

Pseudosciaena, 393.

Sciaena, 393.

Sciaena (Corvina), 393.

Scomber leopardus Shaw, General Zoology, vol. 4, pt. 2, p. 591, 1803 (on Wing Teram Russell, Fishes of Coromandel, vol. 2, p. 134, pl. 134, 1803, type locality, Vizagapatam).

Scomberomorus leopardus Fowler, Ann. Natal Mus., vol. 6, pt. 2, p. 254, May 1929 (Natal).

Cybius interruptum Cuvier, Hist. Nat. Poiss., vol. 8, p. 172, 1831 (type locality, Pondicherry). — Jerdon, Madras Journ. Lit. Sci., p. 136, 1851.

— Günther, Cat. Fish. Brit. Mus., vol. 2, p. 371, 1860 (compiled). — Day, Fishes of India, pt. 2, p. 254, pl. 56, fig. 3, 1876 (Madras); Fauna British India, Fishes, vol. 2, p. 210, 1889.

Scomberomorus (Sawara) interruptus Deraniyagala, Ceylon Journ. Sci., vol. 18, pt. 1, p. 41, fig. 2, Dec. 22, 1933 (Ceylon).

Cybium kuhlii Cuvier, Hist. nat. Poiss., vol. 8, p. 178, 1831 (type locality, Java; Bombay). — Day, Fishes of India, pt. 2, p. 254, 1876 (Bombay); Fauna of British India, Fishes, vol. 2, p. 209, 1889. — Tirant, Serv. Océanogr. Péch. Indo Chine, 6^e note, p. 169, 1929 (Hué).

Scamberomorus kuhlii Fowler, Journ. Bombay Nat. Hist. Soc., vol. 32, no. 2, p. 257, Oct. 20, 1927 (Bombay).

Cybinum lineolatum (not ^{Cyprer} ~~Valenciennes~~)
Cantor, Journ. Asiatic Soc. Bengal,
 vol. 18, pt. 2, (1849 (1850)) p. 1092,
 (Pinang).

Pelamys atripinnis Günther, Cat.
 Fish. Brit. Mus., vol. 2, (1860) p. 371,
 (type locality, India) (name in
 text).

malabarica, Sciaena, 418.

⊙ Sillago, 418.

malabaricus, Mullus, 288.

⊙ Upeneus, 288, 290.

manchurica, Sciaena, 368, 369, 370.

mansenoides, Lethrinus, 46.

marciae, Pimelepterus, 209.

margaritifer, Lethrinus, 5.

margaritifera, Sciaena, 400.

margaritiferum, Aplodon, 187, 192, 193.

marginata, Chrysophrys, 164.

⊙ Perca, 435.

marginatus, Dentex, 98, 99.

⊙ Nemipterus, 98.

marleyi, Johnius, 389.

⊙ Sciaena, 389.

masena, Lethrinus, 54.

mashena, Lethrinus, 46.

mashenoides, Lethrinus, 46.

matsubarae, Dentex, 118, 125.

⊙ Nemipterus, 125, 126.

mauritanus, Upeneus, 265.

Megalepis, 318.

⊙ alessandrini, 318.

megalommatus, Pagrus, 162.

⊙ Sparus, 147, 162.

Sparus (Pagrus), 162.

Megalops cyprinoides, 227.

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Depth $4\frac{1}{5}$ to $4\frac{3}{4}$; head $3\frac{1}{2}$ to $4\frac{3}{4}$, width $2\frac{1}{8}$ to $2\frac{1}{6}$. Snout $2\frac{2}{3}$ to $3\frac{1}{10}$ in head; eye $4\frac{1}{10}$ to $7\frac{2}{3}$, $1\frac{2}{5}$ to $2\frac{4}{8}$ in snout, $1\frac{1}{10}$ to $2\frac{3}{5}$ in interorbital; maxillary reaches $\frac{4}{5}$ to, or little beyond eye, expansion $1\frac{1}{4}$ to $1\frac{2}{3}$ in eye, length $1\frac{2}{3}$ to $1\frac{9}{10}$ in head; teeth compressed, lanceolate, 34 to 36 above, 24 to 26 below; villiform teeth on vomer and palatines and tongue; interorbital 3 to $3\frac{3}{4}$ in head, convexly elevated. Gill rakers 2 to 3 + 7 to 9, lanceolate, $\frac{1}{2}$ of gill filaments, which equals eye.

Scales minute, little evident. Dorsal, anal and caudal lobes finely scaled. Lateral line curves rather evenly along back, drops medially on caudal peduncle.

D. XV or XVI - III or IV, 13 to 15 + 7 to 10, third spine $2\frac{1}{5}$ to 4 in head, first branched ray $1\frac{4}{5}$ to

3; A. III to V, 14 to 17 + 7 to 10,
first branched ray $1\frac{4}{8}$ to $3\frac{1}{4}$;
caudal 1 to $1\frac{2}{5}$, deeply forked;
least depth of caudal peduncle
 $4\frac{2}{5}$ to $6\frac{1}{2}$; pectoral $1\frac{3}{4}$ to $2\frac{3}{4}$,
rays I, 20; ventral I, 5, fin
 $3\frac{1}{8}$ to $3\frac{4}{5}$ in head.

Gray brown above, paler on
sides and below whitish. Back
with numerous obscure neutral
dusky to blackish spots, in 6
longitudinal rows. Iris gray
brown. Spinous dorsal neutral
black. Soft dorsal, pectoral,
caudal brownish, other fins
whitish.

India, Malaya, East Indies,
Siam, China, Japan, New South
Wales, Queensland, New Zealand.

4 in head, first branched ray

U. S. N. M., no. 59843. New South
Wales. D. G. Stead. Length 565 mm. ²⁶³

U. S. N. M., no. 72630. Batavia,
Java. April 2, 1909. Bryant and
Palmer. Length 227 mm.

U. S. N. M., no. 72631. Batavia.
April 2, 1909. Bryant and Palmer.
Length 51 mm.

U. S. N. M., no. 72632. Batavia.
April 2, 1909. Bryant and Palmer.
Length 183 mm.

A. N. S. P., one example. Bombay.
Dr. F. Hallberg. Purchased. 1925.
Length 450 mm.

A. N. S. P., two examples. Bombay.
Dr. F. Hallberg. Purchased. 1925.
Length 61 to 78 mm. (as Scomberomorus
kuhlii).

A. N. S. P., ^{nos. 27490 and 27491} ~~two examples~~. Padang,
Sumatra. A. C. Harrison and Dr. H.
M. Miller.

maculata, Corvina, 381.

Isosillago, 431, 432.

Sciaena, 375, 381.

Sillago, 416, 419, 422, 423, 425, 430.

maculato, 416.

maculatus, Anoplus, 3.

Johnius, 372, 375, 380.

Lethrinus, 28, 30.

Otolithes, 354, 359.

Otolithus, 359.

maculosus, Hoplegnathus, 224.

madagascariensis, Chrysophrys, 146.

Sparus, 146.

Maenioides, 69.

Maenoides, 69.

aurofrenatus, 69, 71.

cyano-taeniatus, 70.

mahsena, Lethrinus, 7, 53, 54, 55.

Sciaena, 53.

Sparus, 53.

mahsenoides, Lethrinus, 6, 35, 39, 45.

Lethrinus, 46.

Maina, 4.

major, Chrysophrys, 139.

Pagrosomus, 139, 142.

Pagrus, 139.

Pagrus (Chrysophrys), 139.

Sparus, 139.

Underlined ngs. case 12

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Scomberomorus koreanus (Kishinouye)

Cybium koreanum Kishinouye, Sci.
Tak. Ho, vol. 1, (1915) p. 11, pl. 1, fig. 3
(type locality, mouth of Haidoko
near Chinnampo); Journ. College
Agric. Tokio, vol. 8, pt. 3, ^(March) 1923,
pl. 420, fig. 35, type. — Anonymous,
Illustr. Jap. Aquat. Animals, vol. 1,
pl. 27, fig. 2, 1931.

265

Depth $3\frac{1}{2}$; head 5. Snout 3 in head from snout tip; eye 7, $2\frac{1}{8}$ in snout; maxillary reaches hind eye edge, expansion $1\frac{2}{5}$ in eye, length 2 in head from snout tip; teeth sharp, elongated, 16 to 19 above, 13 to 15 below; villous teeth on vomer, palatines and tongue; interorbital rather high. Gill rakers $3 + 10$, Vertebrae $20 + 26$.

Scales small, in corselet, lateral line and around fin bases. Lateral line high or little above axis, gently undulated or waved, with many short branches on its anterior half.

D. XIV - IV, $13 + 9$, third spine $3\frac{1}{4}$ in total head length, first branched ray $1\frac{1}{3}$; A. V, $15 + 7$, first branched ray $1\frac{2}{5}$; least depth of

caudal peduncle $3\frac{7}{8}$; pectoral $1\frac{1}{2}$,²⁶⁶
rays II, 18; ventral I, 5, fin 4 in
total head length.

Body with brilliant metallic
luster. Back gray blue, belly
silvery. Along lateral median
line 3 or more longitudinal
rows of small grayish spots.
Fins blackish. Ventral and
anal pale. Length $1\frac{1}{2}$ meters.
(Kishinouye.)

Korea. Feeds on sardines,
anchovies and shrimp.

Scomberomorus niphonius ²⁶⁷ Cuvier
Valenciennes

Cybius niphonium Cuvier
Valenciennes, Hist.
Nat. Poiss., vol. 8, (1831) p. 180, (type
locality, Japan). — Schlegel, Fauna
Japonica, Poiss., pts. 5-6, (1844) p. 101,
pl. 53, fig. 2, seas of Japan. —
Bleeker, Verh. Batavia. Genoots.
Nat. Ichth. Japan, vol. 25, (1853) p.
14, (reference). — Günther, Cat.
Fish. Brit. Mus., vol. 2, (1860) p.
37, (copied). — Kishinouye, Sci.
Gak. Ho, vol. 1, (1915) p. 10, pl. 1, fig. 4;
Journ. College Agric. Tokio, vol. 8,
pt. 3, ^{March} 1923, p. 421, figs. 6, 9, 32, 41,
(Hondo, Shikoku, Kyushu, Chosen,
North China, Hokkaido, Nagasaki).

Scomberomorus (Cybrin) nipponium
Steindachner and Döderlein, Denks.
Akad. Wiss. Wien, math.-naturw. Kl.,
vol. 49, p. 180, 1885 (Tschifu, Tokio,
Yango).

279 to 280. Paluan Bay, Mindoro Island. December 11, 1908. Length 139 to 140 mm.

11277 to 11279, 17652 to 17654, 23820. Pandanon Island, between Cebu and Bohol. March 23, 1909. Length 74 to 157 mm.

10643 to 10654. Polloc, Mindanao. May 22, 1908. Length 79 to 136 mm.

23182. Port Banalacan, Marinduque Island. February 23, 1909. Length 112 mm.

23230. Port Cigo, Balabac Island. January 3, 1909. Length 137 mm.

8768, 10358, 10361, 18735. Port Jamelo, Luzon Island. July 13, 1908. Length 124 to 137 mm.

17620. Port Langcan, Humaran Island, vicinity eastern Palawan. April 8, 1909. Length 125 mm.

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Scomberomorus nipponius Tanaka,
Fishes of Japan, vol. 9, November 26,
^{Nov. 26,} 1912, p. 154, pl. 42, #4. figs. 163 and
164, pl. 44, fig. 173 (Tokyo). —
Izuka and Matsuura, Cat. Zool.
Spec. Tokyo Mus., Vertebr., p. 160,
1920 (Tokushima). — Tanaka, Journ. Faculty
Sci. Univ. Tokyo, vol. 3, pt. 1, p. 22, November 4, 1931 (reference).
Scomberomorus nipponium Anonymous,
Illustr. Jap. Aquat. Animals, vol. 1, pl.
26, fig. 5, 1931.

Sawara nipponia Jordan and
Hubbs, Mem. Carnegie Mus., vol. 10,
no. 2, June 27, 1925 (p. 214) (Kobe).

270

Depth $4\frac{3}{4}$ to 5; head 4 to $4\frac{1}{5}$,
width $2\frac{3}{5}$ to $2\frac{7}{8}$. Snout $2\frac{7}{8}$ to 3
in head; eye 4 to 5, $1\frac{4}{5}$ to $1\frac{7}{8}$ in
snout, $1\frac{1}{5}$ to $1\frac{1}{2}$ in interorbital,
adipose lids broad behind with
age; maxillary reaches $\frac{4}{5}$ in eye
or to hind eye edge, expansion
 $1\frac{4}{5}$ to 2 in eye, length $1\frac{3}{4}$ to $1\frac{4}{5}$
in head; teeth about 30 above,
22 below; interorbital 4 to $4\frac{1}{8}$,
low, convex. Gill rakers 4 + 10,
lanceolate, $\frac{1}{2}$ of gill filaments,
which $1\frac{1}{4}$ in eye.

Lateral line complete, high
till over vent, then little waved
and falls median along tail, to
end in small keel along each
side of lateral line.

D. XX - V, 11 + 8, fourth spine
 $2\frac{7}{8}$ to $3\frac{1}{8}$ in total head length,
first branched ray $2\frac{3}{4}$ to 3, A.

puniceus, 166.

robinsoni, 158.

rubroptera, 144.

sarba, 149.

schlegeli, 163.

spinifer, 143.

swinhonis, 164.

tumifrons, 117, 123.

unicolor, 138, 139, 141.

vagus, 145, 158.

(Acanthopagrus) vagus, 158.

xanthopoda, 163, 164.

Chrysophrys latnia, 155.

chrysopleuron, Mullus, 315.

Pseudupeneus, 273, 315.

Upeneus, 315.

chrysopterus, Sparus, 155.

chrysostomus, Lethrinus, 6, 35, 46.

chrysura, Bairdiella, 352.

Chthamaloptyx, 257.

melbournensis, 257.

chuan-chua, Sciaena, 362.

chumchum, Lethrinus nebulosus var., 34.

Cichla argyrea, 246.

ciliaris, Pagrus, 144, 152.

ciliata, Sciaena, 305.

Sillago, 416, 422, 428.

cinabarinus, Upeneus, 314.

cinerascens, Cyphosus, 204, 212.

Kyphosus, 204, 211, 212.

Pimelepterus, 211.

Sciaena, 203, 211.

Underscored figs. case 12/3

IV, 12 + 8 or 9, first branched ray
 $2\frac{4}{5}$ to 3; caudal 1 to $1\frac{1}{4}$, widely
 emarginate; least depth of caudal
 peduncle $5\frac{1}{2}$ to $5\frac{3}{5}$; pectoral
 $1\frac{4}{5}$ to 2; ventral $2\frac{7}{8}$ to $3\frac{1}{8}$.

Back gray, sides and below
 silvery white. Iris whitish.
 First dorsal dusky to blackish
 brown anteriorly. Soft dorsal
 and caudal brownish, other fins
 whitish.

Japan, Korea, China.

chrysecros, Upeneus, 305.

Chryseius, 145.

chryseridros, Upeneus, 309.

chryseridros, Upeneus, 305.

chryserthrus, Upeneus, 305.

chryserydros, Mullus, 306, 309, ~~315~~.

Parupeneus, 305.
Pseudupeneus, 272, 305, 309.
Upeneus, 305, 309.

Chrysoblephus, 145, 147, 153.

gibbiceps, 165.

nasutus, 165.

chrysonemus, Pseudupeneus, 273, 312.

Upeneus, 312.

Chrysophris, 145.

australis, 152.

berda, 157.

bifasciatus, 160.

calamara, 158.

haffara, 162.

sarba, 149.

Chrysophrys, 64, 138.

algoensis, 167.

anglicus, 164.

aries, 149.

¹³⁹
auratus, 141.

auripes, 163, 164.

australis, 145, 151.

berda, 157.

U. S. N. M., No. 37756. Korea.

J. B. Bernadon. Length 263 mm.

U. S. N. M., No. 45282.

P. L. Jouy, Length 2 183 to 270 mm.

Two examples.

8 Pt. Half P

Follow Life

H. J. Johnson 25

meridionalis, 205.

oblongior, 208, 210.

ocyurus, 215.

raynaldi, 212.

sandwicensis, 207.

sydneyanus, 204, 205.

tahmel, 212.

ternatensis, 210.

vaigiensis, 207, 209.

waigiensis, 209, 210, 211.

Pimelopterus, 203.

fuscus, 206.

tahmel, 207, 210, 212.

Pinnicorvina, 370.

pinnivittatus, Mulloides, 331, 332.

Plagiogenion, 344, 350.

macrolepis, 350.

rubiginosus, 350.

plagiostoma, Corvina, 402.

Pseudosciaena, 402.

plagiostomus, Johnius, 371, 373, 402.

platycephala, Corvina, 375.

Sciaena, 375.

Platycephalus sihamus, 417.

pleurospilos, Pseudupeneus, 272, 274.

Upeneus, 273, 302, 304, 318.

pleurospilus, Parupeneus, 274.

Pseudupeneus, 272, 273.

Upeneus, 273.

273

Genus Grammatocy^cnus Gill

Grammatocy^cnus Gill, Proc. Acad.
Nat. Sci. Philadelphia, 1862, p. 125,
(Type Thynnus bilineatus Rüppell,
monotypic.)

Hexagrammus Evermann and Pierson,
Bull. Bur. Fisher., vol. 26, 1906
(1907), p. 61, (Type hexagrammus
piersoni Evermann and Pierson,
monotypic.)

Grammatocy^cnus Day, Fishes of
India, pt. 2, p. 251, 1876. (Type
Thynnus bilineatus Rüppell.)

Grammatocy^cous Holan, Index

Journ. Proc. Acad. Nat. Sci.

Philadelphia, 1913, p. 668,

(Type Thynnus bilineatus Rüppell.)
(error).

274

Body elongate, compressed. Head rather small. Snout conic. Eye large, little advanced. Mouth rather small. Deep groove in skin from mouth corner. Maxillary moderate, reaches below eye. Tongue broad. Teeth elongate, trenchant. Vomer and palatines with villiform teeth. Preopercle with emargination at hind edge below. Gill rakers short and strong, lower 16. Vertebrae 31, of which 18 caudal. Body covered with small scales. Pores indistinct. Two lateral lines on each side of body. Lateral keel of caudal peduncle low, small, covered with row of pored scales. Keel at base of each caudal lobe. Two dorsals, continuous, second dorsal and anal divided into finlets in hind part, lower than

lucida, 362.

lucidus, 361, 362, 370.

microdon, 364.

niveatus, 363.

pama, 360.

comes, Corvina, 383.

constrictus, Chaetodon, 437.

conwaii, Oplegnathus, 217, 218.

conwayi, Hoplegnathus, 218.

Oplegnathus, 218.

conwayii, Hoplegnathus, 218.

Coracininae, 203.

Coracinus, ~~iv~~, 203, 215.

capensis, 216.

cauda lunata, 215.

coracinus, Chrysophrys, 146.

Sparus, 146.

Corvina, 370.

albida, 378.

albiflora, 385.

amblyceps, 369.

anei, 376.

argentata, 394.

argentea, 393.

australis, 386.

axillaris, 397, 400.

belangeri, 382.

belangerii, 377, 382.

belengeri, 382.

belengerii, ~~377~~, 382.

275
first dorsal. Caudal deeply
forked, rather small. Pectoral
moderate. Ventral small.

Apparently a single wide
ranging species in the Indo-
Pacific.

8 PL. NEW D. B. FOLLOW TIT
cinereus, Lethrinus, 28, 29.

12
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21

Q Mugil, 227.

cinnabarensis, Upeneus, 314.

cinnabarinus, Lethrinus, 5.

Q Pseudupeneus, 273, 314.

Upeneus, 314.

cirrrosa, Sciaena, 409.

Q Umbrina, 408.

cirrosa, Sciaena, 407.

Clara, 256.

cocosensis, Lethrinus, 58, 59.

coeruleopunctatus, Dentex, 118, 128.

Q Dentex (Polysteganus), 128.

Polysteganus, 128.

coibor, Bola, 378.

Q Johnius, 372, 378.

Sciaena, 378.

coitor, Bola, 405.

Q Corvina, 405.

Johnius, 374, 383, 405.

Sciaena, 405.

Coius datnia, 155.

Collichthyinae, 353.

Collichthys, 353, 361, 364.

Q biaurita, 365.

biauritus, 365.

brunneus, 366.

chinensis, 362.

fragilis, 363, 364.

276

Grammatocygnus bicarinatus (Duoy and
Gaimard)

Thynnus bicarinatus Duoy and
Gaimard, Voy. Uranie, Zool.,
(1825) p. 357, pl. 61, fig. 1, (type
locality, Shark Bay, Western
Australia).

Grammatocygnus bicarinatus Mc
Culloch, Proc. Linn. Soc. New South
Wales, vol. 40, ^{pt. 2} (1915 (June 30)) p. 266,
pl. 35, fig. 1, ✓

Grammatocygnus bicarinatus

Mc Culloch, Mem. Austral. Mus.,
no. 5, pt. 2, September 10, 1929 p. 264,
(reference).

Thynnus bilineatus Rüppell, Neue
 Wirbelth. Fische, p. 39, pl. 12, fig. 2,
 1835 (type locality, Massana, Red
 Sea). — Günther, Cat. Fish. Brit.
 Mus., vol. 2, p. 366, 1860 (reference).
 — Gill, Proc. Acad. Nat. Sci.
 Philadelphia, p. 125, 1862 (name).
 — Klunzinger Verh. zool. bot. Gesell.
 Wien, vol. 21, p. 443, 1871 (Red Sea).

Grammatorcynus bilineatus Klunzinger,
 Fische Roth. Meer., vol. 1, p. 113, 1884.
 — Kishinouye, Sci. Gab. Ho., vol. 1,
 p. 86, 1915; Journ. College Agric.
 Tokio, vol. 8, pt. 3, p. 413, figs.
 8, 62, March 1923 (Ryukyu; Marshall
 Islands).

278

Hesogrammus personi Evermann and
Seale, Bull. Bur. Fisher., vol. 26,
(1906 (1907) p. 61, fig. 3) (type
locality, Buluan, Hongkong,
Philippines).

Hesogrammus thompsoni Fowler,
Occas. Pap. Bishop Mus., vol. 8, no. 7,
(1923) p. 376, (type locality, Honolulu).

Grammatocygnus thompsoni Fowler,
Mem. Bishop Mus., vol. 10, (1928) p. 135,
(type).

Argyrosomus, 370.

aneus, 376.

goldmani, 377, ^{378,} 387.

procerus, 370.

argyrozona, Dentex, 118, 120, 121.

aries, Chrysophrys, 149.

Sparus, 150.

arinuag, Upeneus, 314.

armata, Bairdiella, 353.

armatus, Chaetodon, 437.

Enoplosus, 437.

Mulloidides, 267.

Mulloidichthys, 267.

Pagellus, 153, 154.

Arrhipis salar, 436.

Arripidae, 433.

Arripis, 433.

georgianus, 434.

salar, 436.

trutta, 434, 435.

truttaceus, 435.

arthurius, Pagrus, 140.

asper, Sciaenoides, 390.

atelodus, Atractoscion, 368.

Cynoscion, 368.

Otolithus, 367, 368.

Zeluco, 368.

Atherina sihama, 417.

8 Pt. Half Doc

Follow Lit

Underlined figs. cause

13473

5

Depth $4\frac{3}{5}$ ^{$4\frac{1}{5}$ to 5} ; head $4\frac{1}{4}$ ^{$4\frac{1}{5}$ to 5} , width 2 ^{$1\frac{9}{10}$ to $2\frac{1}{2}$} 279

Snout $2\frac{7}{8}$ ^{$2\frac{3}{4}$ to 3} in head from snout tip; eye $4\frac{1}{10}$ ^{$4\frac{2}{5}$ to 5} $1\frac{1}{2}$ ^{$1\frac{2}{3}$ to 2} in snout, $1\frac{1}{5}$ ^{$1\frac{1}{2}$ in} in interorbital; maxillary reaches $\frac{1}{5}$ ^{$\frac{1}{4}$ to $\frac{1}{2}$} in eye, expansion 3 ^{$2\frac{2}{5}$ to 3} , length $2\frac{1}{5}$ ^{$2\frac{1}{4}$ to 3} in head from snout tip; interorbital 3 , low, depressed. Gill rakers $6 + 16$ ^{4 to 18} lanceolate, equal gill filaments $2\frac{1}{4}$ ^{$1\frac{1}{2}$ to 3} in eye.

Scales 170 in upper lateral line, 150 in lower lateral line; 15 above, 26? between lateral lines, 6 below to anal origin; 38 predorsal forward opposite eye center; 5 rows of scales between eye and preopercle ridge.

D. ~~XX~~ ^{or} ~~XXI~~ ^{or} I, $9 + 7$ ^{6 to 8} , third spine $2\frac{1}{2}$ ^{$1\frac{1}{2}$ to 2} in total head length, first branched ray (damaged) $2\frac{2}{3}$ ^{$2\frac{1}{3}$ to 3} A. I, $11 + 6$ ^{10 to 12} , first branched ray $3\frac{1}{3}$ ^{$3\frac{1}{4}$ to $3\frac{1}{2}$} ; caudal $1\frac{1}{6}$ ^{$1\frac{1}{4}$ to $1\frac{1}{2}$} , widely forked; least depth of caudal peduncle 6 ^{$5\frac{3}{5}$ to 6} ; pectoral $1\frac{3}{4}$ ^{$1\frac{1}{2}$ to 2} , rays I or II , 22 ^{20 to 23} basally

81% Half Doc Follow Lit Underwood fig. case 12 E

axillaris, Bola, 397.

q/ Corvina, 397, 400.

Johnius, 373, 397.

Sciaena, 397.

azureus, Lethrinus, 48.

q/ Sectator, 215.

baconensis, Gerres, 228, 245.

q/ Xystaema, 231, 245.

Bairdiella acanthodes, 352.

q/ armata, 353.

chrysur, 352.

balague, Upeneoides, 331, 333.

balinensis, Dentex, 103.

q/ Synagris, 93, 103.

balinensoides, Synagris, 104.

balteatus, Smaris, 346.

bandi, Mullus, 335.

banhamensis, Lethrinus, 21, 23.

Banjos, 2.

q/ banjos, 2, 3.

typus, 2, 3.

banjos, Anoplus, 2.

q/ Banjos, 2, 3.

typus, 2, 3.

Banjosidae, 2.

barberinoides, Parupeneus, 276.

q/ Pseudupeneus, 272, 276, 277.

Upeneus, 276, 317.

134733

8

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scaly below; ventral I, 5, fin $2 \frac{9}{10}$
to $3 \frac{1}{4}$ in head.

Upper half of body rather dark brown, lower half whitish, with silvery reflections. Fins brownish.

Red Sea, Philippines, Western Australia, New South Wales, Marshall, Hawaii.

aurea, Sciaena, 372.

aureo-lineatus, Sparus, 76.

aureovittatus, Mullus, 264.

aureus, Otolithus, 357, 358.

aurifilum, Nemipterus (Euthyopteroma), 109.

ⓐ Pentapus, 109.

Synagris, 87, 109.

auriflamma, Mulloides, 263.

ⓐ Mulloidichthys, 261, 263.

Mullus, 263, 279.

aurilineatus, Pentapus, 69.

auripes, Chrysophrys, 163, 164.

auriventris, Diplodus, 175, 178.

ⓐ Sargus, 178.

~~auroflamma, Mulloides, 264.~~

aurofrenatus, Maenoides, 69, 71.

aurolineatus, Gnathodentex, 76.

ⓐ Lethrinus, 49.

Pentapodus, 71, 76.

Pentapus, 69, 76.

australis, Chrysophris, 152.

ⓐ Chrysophrys, 145, 151.

Corvina, 286.

Gerres, 227.

Hoplognathus, 218.

Jannius, 372, 386.

Pagrus, 152.

Sciaena, 386.

Sparus, 147, 151, 152.

8419. Cebu market, Cebu.
March 21, 1909. Length 620 mm.

282
U. S. N. M., No. 55899. Bulan.

Prof. C. J. Person, Bureau of
Fishes (4178). Length 420 mm.
(caudal tips broken). Type of
hexagrammus personi. Evermann
and Seale give 7 anal finlets,
though the type appears to me
to show but 6, the first one
according to their count apparently
only partly connected with its
antecedent and its membrane
torn.

barberinus, Mullus, 283, 319.

⓪ Mullus (Upeneus), 283.

Parupeneus, 284.

Pseudupeneus, 272, 280, 283, 284.

Pseudupeneus (Hogbinia), 284. -

Upeneus, 272, 283.

barberoides, Upeneus, 276.

Barbupeneus, 271.

⓪ signatus, 282.

bassensis, Sillago, 416, 422, 423, 429.

bathybium, Euthyopteroma, 100.

bathybius, Euthyopteroma, 100.

⓪ Euthyopteroma, 100.

bathybus, Nesipterus, 100.

⓪ Synagris, 86, 100.

belangeri, Corvina, 382.

⓪ Johnius, 382.

Sciaena, 382.

Sciaena (Corvina), 382.

belangerii, Corvina, 377, 382.

⓪ Sciaena, 382.

belaque, Upeneoides, 331, 333.

belengeri, Corvina, 382.

⓪ Johnius, 378, 382.

Sciaena, 382.

belengerii, Corvina, 382.

⓪ Johnius, 372, 382.

bensasi, Mullus, 321.

⓪ Pseudupeneus, 321.

Upeneoides, 321, 325, 326.

Upeneus, 319, 321.

87 Half Day Follow Life

Unrecorded Ass. case 22

134733

9

Genus Gymnosarda Gill

(Gymnosarda Gill, Proc. Acad.
Nat. Sci. Philadelphia, (1862) p.
125, Type Thynnus unicolor
(not Geoffroy) Rüppell =
Gymnosarda nuda Günther,
monotypic.)

284

Body oblong, fusiform, robust. Head large, conic. Eye large, adipose lids moderate. Mouth wide. Maxillary not reaching beyond orbit, well exposed. Teeth large, conic, curved, uniserial in jaws. Villiform teeth on tongue, vomer and palatines. Gill rakers long, slender, 10 below. Vertebrae 38, of which 19 caudal. Scales in corselet elongated, concealed under skin. Outside corselet and bases of fins with skin entirely naked. Lateral line undulating. Well developed keel along each side of lateral line on caudal peduncle. Pectorals low.

Pelagic voracious fishes, somewhat large in size. Indo-Pacific, Mediterranean, North Sea.

berda, Aurata, 157.

Chrysophris, 157.

Chrysophris, 157.

Pagrus, 157.

Sparus, 147, 157.

biaculeatus, Upeneus, 315.

bianritus, Otolithus, 365.

biaurita, Collichthys, 365.

biauritus, Collichthys, 365.

Otolithoides, 364, 365.

Otolithus, 364, 365.

Sciaena, 365.

Sciaenoides, 365.

bicornis, Parequula, 257.

bifasciata, Chrysophris, 160.

bifasciatum, Heterognathodon, 80.

bifasciatus, Chaetodon, 160.

Chaetodon, 160.

Chrysophris, 160.

Chrysophris, 160.

Heterognathodon, 69, 80.

Mullus, 291, 319.

Pagrus, 160.

Parupeneus, 291.

Pentapus, 80, 81.

Pseudupeneus, 272, 291.

Sparus, 147, 160.

Sparus (Chrysophris), 160.

Upeneus, 291, 300, 311.

125

Gymnosarda nuda (Günther)

Pelamys nuda (Günther, Cat. Fish.
Brit. Mus., vol. 2, (1860) p. 368) (on
Rüppell). — Klunzinger, Verh.
zool. bot. Ges. Wien, vol. 21, p. 443,
1871 (Red Sea);

— Klunzinger, (Fische Roth. Meer, vol. 1,
1884) p. 110,

Gymnosarda nuda Kishinouye, Sci.
Yak. Ho, vol. 1, (1915) p. 13, pl. 1, fig. 8;
Journ. College Agric. Tokio, vol. 8,
pt. 3, March 1923, p. 426, (Ogasawara;
Ryukyu).

Thynnus (Pelamis) unicolor (not
Geoffroy) Rüppell, Neue Wirbelth.
Fische, p. 40, pl. 12, fig. 1, 1835 (type
locality, Djedda, Red Sea).

Thynnus unicolor Gill, Proc. Acad.
Nat. Sci. Philadelphia, p. 125, 1862
(name).

287

Depth $4\frac{1}{2}$; head $3\frac{7}{8}$. Snout $2\frac{3}{4}$ in head from snout tip; eye $5\frac{1}{4}$, 2 in snout; maxillary reaches $\frac{1}{4}$ in eye, expansion 2 in eye, length 2 in head from snout tip; upper teeth 18 to 23, lower 10 to 16; interorbital moderately high. Gill rakers $2+10$.

Small wrinkles around pectorals and several longitudinal furrows on both sides of dorsals. Lateral line parallel with dorsal outline of body nearly to twelfth dorsal spine, then bent downward and after first dorsal finlet with few undulations. Scales of lateral line concealed under skin and on both sides of pored scales 2 or 3 rows of minute scales. Lateral keel of

deeply emarginate, lobes pointed.

Bright blue, fading at death.

Young to 150 mm, dusky. (Waite.)

New South Wales, Lord Howe and
Kermadec Islands. According to
McCulloch reaches 610 mm.

caudal peduncle covered with minute, elongate scales.

D. XIV, 13 + 7, second spine $3\frac{4}{5}$ in total head length, soft lobe height $2\frac{1}{3}$; A. 12 + 6, soft lobe height $2\frac{2}{5}$; least depth of caudal peduncle 8; upper caudal lobe $1\frac{1}{8}$; pectoral $1\frac{3}{5}$; ventral $2\frac{2}{3}$.

Dark bluish to violaceous on back, gray white on belly. Top of head and front end of lower jaw grayish. Fins black or grayish, tips of second dorsal and anal colorless. Length 150 cm.

(Rüppell, Kishinouye.)

Red Sea, Riu Kiu, Japan.

"Voracious fish, resorting to the rocky bottoms of coastal

(759) ^{in head}

Depth $2\frac{1}{2}$; head $3\frac{4}{5}$. Snout $2\frac{7}{8}$; eye $5\frac{1}{2}$, 2 in snout; maxillary reaches $\frac{4}{5}$ to eye, length $4\frac{1}{5}$ in head; lower jaw little shorter than upper; interorbital convexly elevated; preopercle edge entire.

Scales 62 along above lateral line to caudal base; tubes 58 in lateral line to caudal base; 9 scales above lateral line, 19 below, predorsal scales forward opposite hind eye edge; 6 rows across cheek to preopercle ridge; flange broadly naked; opercles and muzzle entirely naked.

D. XV, 13, sixth spine 3 in head, first ray $2\frac{4}{5}$; A. III, 10, second spine $3\frac{1}{4}$, first ray $2\frac{1}{10}$; least depth of caudal peduncle 2; pectoral $1\frac{1}{8}$; ventral $1\frac{1}{2}$; caudal $3\frac{1}{8}$ in combined head and body to caudal base,

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waters in small schools of
tens or scores, devouring
Caesio, Decapterus, etc. (Not
found in off-shore waters).
Caught at grounds about 20-
200 m off, with hooks dressed
with live baits. Bites hooks
readily in the twilight. When
there is no tidal current the
fish is easier caught. A better
catch is expected in the spawning
season, May and June, though it
is caught all the year round.
Some condemn the flesh of this
fish as soft and unsavory,
but others commend it as
delicious. This difference of
opinion is perhaps due to the
difference of season in which

Gviella cyanea Macleay Cue 129

Gviella cyanea Macleay, Proc. Linn. Soc. New South Wales, vol. 5, Feb. 1881, p. 409. no locality (probably coast near Sydney). 1_m Gilby, Proc. Zool. Soc. London, 1887, p. 393 (Botany Bay and Broken Heads); Edible Fishes New South Wales, 1893, p. 45. 1_m Waite, Sea Fisher. Rep. Thetis, 1898, p. 43 (Lord Howe Island); Records Australian Mus., vol. 3, 1904, p. 167, pl. 20, fig. 3 (Lord Howe Island). 1_m Stead, Fishes of Australia, 1906, p. 91 (New South Wales and Lord Howe Island). 1_m Roughley, Fishes of Australia, 1916, p. 54, pl. 13 (New South Wales, Kermadec and Lord Howe Islands). 1_m Mac Culloch, Fishes of New South Wales, 1927, p. 62.

290

the fish was tasted." Although its average length is given above, with the weight 20 to 30 kg, though it has been reported reach 240 cm in length with a weight of 80 kg.

f.¹ No black bar across pectoral base.
tricuspidata.

f.² Black bar across pectoral base.
melanichthys.

e.² Pale vertical band from back to belly.

g.¹ Opercle scaly only on upper angle.
zonata.

g.² Opercle entirely scaled mezina.

d.² Sirellops. Scales 60 to 63 in lateral line.

h.¹ Uniform dark brownish gray.
fimbriata.

h.² Dark umber to olive brown, with 7 dark transverse bands.
nebulosa.

Can 13
name only

Genus Sarda Cuvier

291

Sarda Cuvier, Règne Animal, vol. 2, (1817) p. 199, (Type Scomber sarda Block, tantotypic.)

Pelamys (not Walbaum 1792) ^{Cuvier} Valenciennes, Hist. Nat. Poiss., vol. 8, (1831) p. 149, (Type Scomber pelamis (not Linnaeus) B. rünnich = Scomber sarda Block, virtual tautonymy.)

Orcynopsis Gill, Proc. Acad. Nat. Sci. Philadelphia, (1862) pp. 125, 126, (Type Scomber unicolor Geoffroy, orthotypic.)

292

Body rather elongate, rather short and compressed in young. Caudal peduncle slender, strongly beeled. Head large, pointed, compressed. Mouth wide. Maxillary exposed. Teeth in jaws rather strong, large, conic, slightly compressed, strongly recurved. Similar teeth on palatines, none on vomer. Tongue toothless. Gill rakers long, strong, lower 9 to 17. No air bladder. Pyloric coeca very numerous, dendritic. Vertebral 45 to 54. Scales small or minute, form corselet at pectoral ~~origin~~ region. Caudal keel, along side of caudal peduncle, broad, scaleless. First dorsal rather long and low, spines 18 to 22, stout, gradually shorter posteriorly. Interdorsal

Follow-up Case
Landed

134789

792

D. XIII, I, 26, I, third spine $2\frac{3}{5}$ in head, third ray $3\frac{1}{4}$; A. II, 21, I, third ray $3\frac{1}{4}$; caudal $1\frac{1}{2}$?, deeply emarginate?; least depth of caudal peduncle $3\frac{7}{8}$; pectoral 2; ventral $2\frac{1}{5}$.

Gray/brown above, paler to whitish below. Back and sides above with scattered small deep brown spots, mostly arranged in inclined streaks, though some strewn more or less as broken medial or axial line. Fins all more or less transparent or uniform.

New South Wales, Victoria, South Australia, West Australia. According to McCulloch reaches 450 mm. and not abundant.

47837 U.S.N.M. No locality. Australian Museum. Length, 310? mm.

Genus Sillaginopsis Gill

Sillaginopsis GILL, Proc. Acad. Nat. Sci. Philadelphia, 1861, p. 505.

(Type Sillago domina CUVIER = Cheilodipterus panijus BUCHANAN-HAMILTON, orthotypic.)

Sillaginichthys BLEEKER, Verh. Akad. Wet. Amsterdam, vol. 14, 1874, p. 63

(name in synonymy). (Type Sillago domina CUVIER.)

Body elongated, partly cylindrical. Head elongated, depressed, upper profile nearly straight, gradually narrows forward in width. Eyes very small, in front half of head. Mouth small, lower jaw shorter than upper. Teeth villiform, larger in outer row anteriorly. Pyloric coeca 4. Scales small, about 90 in lateral line. Second dorsal spine very elongate, spines 9, origin of fin over pectorals; soft dorsal long, higher in front, rays 25 to 27. Anal shorter than soft dorsal, rays 26 or 27. Caudal emarginate. Ventral with slender spine.

One species.

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space short. Second dorsal small, followed by 8 or 9 finlets. Anal similar, usually with one less finlet. Paired fins small. Pectoral below level of pupil. Many dark longitudinal more or less inclined stripes on back.

Rather small, voracious, pelagic fishes of subtropical and tropical seas.

Analysis of Species

a¹ Gill rakers 9+16. chiliensis.

a² Gill rakers 3 to 5 + 12 to 14. sarda.

a³ Gill rakers 1+9. orientalis.

8 pt. Lead

Follow-Incl Caps

134789

798

Arripis trutta (Schneider)

Sciaena trutta (FORSTER). SCHNEIDER, Syst. Ichth. Bloch, 1801, p. 542.

(Cook Strait and Queen Charlotte Sound, New Zealand).

Perca trutta CUVIER, Hist. Nat. Poiss., vol. 2, 1828, p. 53 (New Zealand).

Arripis trutta GILL, Mem. Nat. Acad. Sci., vol. 6, 1893, p. 116 (refer-

ence). - STEAD, Fishes of Australia, 1906, pp. 113, 116. - WAITE, Rec.

Canterbury Mus., vol. 1, No. 1, Apr. 25, 1907, p. 20 (reference); vol.

1, No. 3, June 24, 1911, p. 219 (Palliser Bay, in 11 to 38 fathoms).

ROUGHLEY, Fishes of Australia, 1916, p. 116, pl. 37. - WAITE, Rec.

South Austral. Mus., vol. 2, No. 1, Apr. 23, 1921, p. 104, fig. 160. -

FOWLER, Proc. Acad. Nat. Sci. Philadelphia, 1923, p. 44 (Melbourne). -

MC CULLOCH, Fishes New South Wales, ed. 2, 1927, p. 55, pl. 23, fig.

200 b.

Perca marginata CUVIER, Hist. Nat. Poiss., vol. 2, 1828, p. 53. ("Peron

avait rapporté de son voyage" [locality unknown, probably Tasmania].

Centropristes truttaceus CUVIER, Hist. Nat. Poiss., vol. 3, 1829, p. 50.

(Port Western).

Arripis truttaceus GÜNTHER, Cat. Fish, Brit. Mus., vol. 1, 1859, p. 254

(copied). - CASTELNAU, Proc. Zool. Acclimat. Soc. Victoria, vol. 1,

1872, p. 52 (Victoria); London Internat. Exhib. Cat. Victoria, 1872,

pp. 132, 133 (Victoria); Proc. Zool. Acclimat. Soc. Victoria, vol. 2,

1873, p. 127 (Freemantle); Proc. Linn. Soc. New South Wales, vol. 3,

1878, p. 350 (Port Jackson). - KLUNZINGER, Sitz. Ber. Akad. Wiss. Wien,

Math.-nat. Kl., vol. 80, pt. 1, 1879, p. 347 (Wellington, King George's

Sound, Hobson's Bay). - JOHNSTON, Proc. Roy. Soc. Tasmania, 1882(1883),

p. 110 (Tasmania). - MCCOY, Prodrum Zool. Victoria, vol. 1, Dec. 2,

1885, pls. 16-17.

type
locality:

294

Sarda chilensis (^{Cuvier}~~Valenciennes~~)

Pelamys chilensis ^{Cuvier}~~Valenciennes~~,
Hist. Nat. Poiss., vol. 8, (1831) p. 163,
(type locality, Valparaiso, Chili).
Day

Pelamys chilensis Günther, Cat. Fish.
Brit. Mus., vol. 2, (1860) p. 368 (copied).
— Day, Fishes of India, pt. 2, p.
253, pl. 56, fig. 1, 1876 (Bombay);
Fauna British India, Fishes,
vol. 2, p. 208, fig. 73, 1889.

295

Sarda chilensis Jordan and Gilbert,
Bull. U.S. Nat. Mus., no. 16, p. 428,
1882 (1883) (compiled). — Jordan
and Snyder, Proc. U.S. Nat. Mus.,
vol. 28, p. 125, 1904 (Honolulu). —
Jordan and Evermann, Bull. U.S.
Fish Comm., vol. 23, pt. 1, p. 175, 1903
(1905) (Honolulu). — Izuka and
Matsuura, Cat. Zool. Spec. Tokyo
Mus., Vertebr., p. 161, 1920 (Bengo).
— Jordan and Jordan, Mem.
Carnegie Mus., vol. 10, no. 1, p. 32,
Dec. 1922 (Honolulu). — Barnard,
Ann. South African Mus., vol. 21,
pt. 2, p. 801, Oct. 1927 (Natal). —
Fowler, Mem. Bishop Mus., vol. 10,
p. 134, pl. 93, 1928 (Honolulu). —
Tanaka, Journ. Faculty Sci. Univ.
Tokyo, Zool., vol. 3, pt. 1, p. 22, Nov.
2, 1934 (reference).

Sarda chilensis McCulloch,
Mem. Austral. Mus., No. 5, pt.
2, p. 264, September 10, 1929
(reference). — Walford, Div.
Fish game California, Bur. Comm.
Fisher., Fish Bull. No. 28, p. 73,
~~1931~~ fig. 50, 1931 (California).

Apogonichthys ~~musci~~ elliotti (Day)

Apogon elliotti Day, Fishes of India,
pt. 1, 1875, p. 63, pl. 17, fig. 1. Madras;
Suppl., 1888, p. 784; Fauna Brit.

India, ^{Fishes} vol. 1, 1889, p. 497. — Johnstone,
Rep. Ceylon Pearl Fisher., pt. 2, 1904, p.
220 (Galle)

Amia elliotti McCulloch, Biol. Res.

Endeavour, vol. 3, no. 3, 1915, p. 119

(off Gloucester Head, Queensland, 35
fathoms).

Apogon nigripinnis (non Valenciennes)

Jerdon, Madras Journ. Lit. Sci., 1851, p.

128. — Günther, Cat. Fishes Brit. Mus.,
vol. 1, 1859, p. 255 (part).

Apogon arafurai Günther, Rep. Voy. Challenger,
vol. 1, 1880, p. 38, pl. 16, fig. C. Arafura
Sea.

Pelamys australis Macleay, Proc.
Linn. Soc. New South Wales, vol. 5,
(1882) p. 557, (type locality, Port Jackson).

Pelamys schlegelii McCoy, Prodr. Zool.
Victoria, pt. 16, (1888) p. 207, pl. 115,
(type locality, Port Phillip, Victoria).

Scarda (Pelamys) chilensis var.
orientalis Steindachner and
Döderlein ^(not Schlegel) ~~Denks.~~ Abad. Wiss. Wien,
Math.-naturw. Kl., vol. 49, pt. 1, p. 179,
1885 ^{Tokio} (~~Japan~~; Peru; Chile) (not
Tokio material) (error).

134789 800

Depth $3\frac{3}{5}$ to $3\frac{2}{3}$; head $3\frac{1}{4}$ to $3\frac{2}{5}$, width 2 to $2\frac{1}{8}$. Snout $3\frac{1}{2}$ in head from snout tip; eye $5\frac{1}{5}$ to $5\frac{1}{3}$, $1\frac{2}{3}$ to $1\frac{3}{4}$ in snout, $1\frac{3}{4}$ to $1\frac{4}{5}$ in interorbital; maxillary reaches $\frac{2}{3}$ to $\frac{3}{5}$ in eye, expansion $1\frac{1}{3}$ to $1\frac{2}{5}$ in eye, length $2\frac{1}{4}$ to $2\frac{1}{3}$ in head from snout tip; teeth in villiform bands in jaws, on vomer and palatines; interorbital 3 to $3\frac{1}{8}$, broad, nearly level; preopercle edge feebly denticulate. Gill rakers 14 + 21, lanceolate, little greater than gill filaments or equal eye.

Scales 52 or 53 in lateral line to caudal base and 6 or 7 more on latter; 7 or 8 above, 10 to 12 below, 24 or 25 predorsal forward nearly opposite eye; 4 rows on cheek to preopercle ridge. Scales with 1 to 5 short basal radiating striae; 20 to 30 obsolete, irregular apical points, often vestigial; circuli moderately fine.

IX, 16, I, fourth spine 2 in total head length, first ray $2\frac{2}{3}$ to 3; III, 10, I, third spine $4\frac{1}{4}$ to $4\frac{2}{3}$, first ray 3; caudal 1, deeply forked, lobes narrowly triangular; least depth of caudal peduncle $3\frac{1}{2}$ to $3\frac{3}{5}$; pectoral $1\frac{4}{5}$ to 2; ventral $1\frac{4}{5}$ to $1\frac{7}{8}$.

Back dull olivaceous, sides and below pale or whitish. Iris whitish. Fins pale brownish, lower ones whitish.

New South Wales, Victoria, Tasmania, Western and South Australia, New Zealand, Lord Howe, Norfolk, and Raoul Islands.

No. 12629 U.S.N.M. # Tasmania. British Museum. Length 250 to 251 mm. (2) examples.

No. 39676 U.S.N.M. # New Zealand. Otago University. Length 220 mm.

No. 42027 U.S.N.M. # Port Jackson, New South Wales. Length 248 mm.

No. 49337 to 49339 A.N.S.P. # Melbourne, Victoria. Mrs. Agnes F. Kenyon. Length

285 to 316 mm.

Depth $4\frac{1}{6}$; head $3\frac{3}{4}$, width $2\frac{1}{10}$.
Snout 3 in head; eye $5\frac{1}{2}$, 2 in
snout, $1\frac{7}{8}$ in interorbital;
maxillary reaches $\frac{3}{4}$ in eye, expansion
2, length $2\frac{1}{10}$ in head; interorbital
 $3\frac{2}{3}$, moderately high, convex.
Gill rakers $9 + 16$, $1\frac{3}{5}$ in gill
filaments, which equal eye.

Scales on body extremely
minute. Opercle well developed.

D. XVIII - II, $11 + 8$, second spine
 $2\frac{2}{3}$ in head, first branched ray
4; A. III, $10 + 7$, first branched ray
4; caudal $1\frac{3}{5}$, widely forked,
least depth of caudal peduncle
11; pectoral $2\frac{1}{3}$, rays II, 22;
ventral $3\frac{3}{5}$ in head, rays I, 5.

Back gray, sides and below
silvery white. Back with 7,
slightly inclined from horizontal,
darker longitudinal bands. Iris

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770

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801

Family Enoplosidae ← 121

Body deep, strongly compressed. Head small. Eye anterior, rather large. Mouth small, oblique, lower jaw well protruded. Preorbital with lower edge denticulate. Pseudobranchiae present. Branchiostegals 7. Pyloric appendages 15. Air bladder large. Vertebrae 27, of which 17 caudal. Lateral line complete, strongly arched. Scales cycloid. Bases of vertical fins scaly. Dorsals, anals and ventrals elevated or prolonged. Caudal small. Pectoral short. Ventral with spine and 5 rays, longer than pectoral.

One genus, in the temperate waters of Australia.

Genus Enoplosus Lacépède ← 130(2)
129

Enoplosus LACÉPÈDE, Hist. Nat. Poiss., vol. 4, (1802, p. 540. (Type

Enoplosus white LACÉPÈDE = Chaetodon armatus (SHAW) WHITE, monotypic.

Enoplosis DUMÉRIL, Zool. Analytic, 1806, p. 335(134). (Type Chaetodon armatus (SHAW) WHITE.)

Body depth more than half its length. Head compressed, with upper profile very concave. Snout short, conic. Teeth villiform, without canines, on jaws, on vomer, palatines and tongue. Interorbital flat, with median groove. Opercle spineless. Preopercle serrated, with spines or denticles at angle. Dorsal with 8 spines, higher soft fin with 14 or 15 rays. Anal with 3 graduated spines and 14 or 15 rays. Pectoral rays 13 or 14.

299
brownish. First dorsal blackish
brown. Fins otherwise brown,
lower ones pale.

India, Japan, New South Wales,
Victoria, New Zealand, Hawaii,
California, Chili.

U. S. N. M., No. 34561. San Francisco,
California. J. C. Brevoort. Length
355 mm.

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A valued food fish all along the eastern and southern Australian coast line. Distinguished from the related Sillago maculata by its deeper caudal peduncle, which nearly equals the postocular region. It agrees however, in the dark basal pectoral blotch.

134789

788

The imperfectly described Sillago terrae-reginae Castelnau is apparently synonymous:

Depth little less than 4; head $3\frac{1}{3}$. Eye $4\frac{1}{2}$ in head, 2 in snout; interorbital 2 in snout; preopercle entire; opercle ends in small spine. Scales

64 in lateral line. D. $\frac{2}{3}$, I, 18, third spine longest; A. II, 15; caudal very slightly concave. Silvery, upper parts greenish. On body some very indistinct transverse dark bands, disappearing in dried specimen. Length 305 mm.

28674 U.S.N.M. No locality. Australian Museum. Two, 279 to 281 mm.

59886 U.S.N.M. New South Wales. D.G. Stead. Four, 245 to 366 mm.

Sillaginopodys, new subgenus

Type. - Sillago chondropus BLEEKER

Diagnosis: Ventral spine expanded as thick cartilaginous pad, joined with first ventral ray.

6-Pt.
footnote

1) Sillago $\pi\theta\upsilon\varsigma$, foot, with reference to the modified ventral fins.

Sillago chondropus Bleeker

Sillago chondropus BLEEKER, Verh. Batav. Genootsch., vol. 22, 1849, p.

61. (Batavia). - GÜNTHER, Cat. Fish. Brit. Mus., vol. 2, 1860, p. 246

(compiled). - GILL, Proc. Acad. Nat. Sci. Philadelphia, 1861, p. 504

(compiled). - BLEEKER, Verh. Kon. Akad. Wet. Amsterdam, vol. 14, 1874,

(compiled). - BLEEKER, Verh. Kon. Akad. Wet. Amsterdam, vol. 9, 1877, p. 1189

Varda sarda (Bloch)

- Scomber sarda Bloch, Naturges.
Deutschland. Fische, pt. 8, vol. 10,
 (1793) p. 44, pl. 334, (type locality,
 Mediterranean; Atlantic Ocean).
 — Schneider, Syst. Ichth. Bloch,
 p. 22, 1801 (copied). — Lacépède, Hist. nat.
Poiss., vol. 4, pp. 699, 700, 1802 (Atlantic; France; Spain).
Pelamyx sarda Valenciennes, Hist.
nat. Poiss., vol. 8, (1831) p. 149, pl. 217,
 (Mediterranean; Cape Verde Islands; Brazil).
 — Günther, Cat. Fish. Brit. Mus.,
 vol. 2, (1860) p. 367, (Cape of Good Hope;
 North America). — Quichenot, Notes
Ile Réunion, vol. 2, p. 26, 1862. —
Jouan, Mém. Soc. Sci. nat.
Cherbourg, ser. 2, vol. 5, p. 106, 1870
 (Seychelles).

8547. San Fernando, Union Province, Luzon. March 17, 1908. Length, 154 mm.
12319. San Vicente Harbor, Luzon. November 13, 1908. Length, 21 to 184 mm.

13 examples.

22342. Shore above Iloilo River. June 2, 1908. Length, 81 mm.

22889. Subig Bay, Olongapo. January 7, 1908. Length 84 mm.

9199, 9200, 9201. Tilig, Lubang Island. July 14, 1908. Length, 176 to
210 mm.

17200 to 17203. Verde de Sur Island, Palawan reef and sand flat. April 6,
1909. Length, 84 to 162 mm. 7 examples.

18813, 18814. Yaua River, Albay Gulf, Luzon. June 7, 1909. Length, 192 to
230 mm.

19332, 19333, 20230, 20394. Sandakan, Borneo. March 2, 1908. Length, 88 to
165 mm.

5255. Sandakan. March 21, 1908. Length, 154 mm.

12389. Hong Kong market. August 13, 1908. Length, 183 mm.

No. 12634 U.S.N.M. Seychelles. British Museum. Length, 105 to 108 mm.
2 examples.

No. 32695 U.S.N.M. Indian Archipelago. Leiden Museum. Length, 257 mm.

No. 30583 U.S.N.M. New Guinea. Australian Museum. Length, 266 to 279 mm. 2
examples.

No. 49324 U.S.N.M. Red Sea. Bellotti. Length, 172 mm. ?

No. 49804 U.S.N.M. Tokyo, Japan. Albatross collection. Length, 181 mm.

No. 51508 U.S.N.M. Korea. Dale and Jouy. Length, 134 mm.

No. 51989 U.S.N.M. Negros Philippines. Dr. Bashford Dean. Length, 52 to 191 mm.
4 examples.

No. 56296 U.S.N.M. Cavite. George A. Lung. Length, 104 to 145 mm. 3 examples.

No. 59669 U.S.N.M. Yamagawa, Japan. Dr. H.M. Smith. Length, 111 mm.

Sarda sarda Barnard, Ann.
South Afric. Mus., vol. 21, pt. 2,
p. 800, October 1927 (Cape Seas).

2 examples [D. 5480]. Tacbac Point,
S. 87° W., 17.3 miles ($10^{\circ}44'36''$ N., 125°
 $19'$ E.), Leyte. Sn 6.2 fathoms. July
29, 1909. Length 82 to 102 mm. [1743.]

4433 [D. 5161]. Tinakta Light, N.
 12° W., 1.80 miles ($5^{\circ}10'15''$ N., $119^{\circ}53'$ E.),
Tawi Tawi Group, Sulu Archipelago.
Sn 16 fathoms. February 22, 1908.
Length 67 mm.

~~4438 [D. 5525] Ju~~
Silvery, with bronze reflections, back
darker and lower surface minutely
dotted with blackish. Isthmus black
and branchiostegal rays blackish,
also edges of preopercle. Iris silvery
gray. Tips of dorsals and caudal
blackish and blackish medianly through
second dorsal. Other fins dusky.

Scomber pelamis (not Linnaeus)
Brünnich, Ichth. Massil., 1768, p. 69,
 (Marseille).

Scomber mediterraneus Schneider,
 Syst. Ichth. Bloch, 1801, p. 23,
 (type locality, Marseille) (on
Brünnich).

Scomber pelamitus Rafinesque,
 Carpat. nov. Ann. Sicil., 1810,
 p. 44, pl. 2, (type locality, Palermo).

Scomber ponticus Pallas, Zool.
 Ross. Asiat., 1811, p. 17.

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775

Sillago bassensis Cuvier

Sillago bassensis CUVIER, Hist. Nat. Poiss., vol. 3, 1829, p. 412.

(Port Western, Bass Strait, Australia). - QUOY and GAIMARD, Voy. Astro-
labe, Zool., vol. 3, 1834, p. 672, pl. 1, fig. 2 (Port Western).

GILL, Proc. Acad. Nat. Sci. Philadelphia, 1861, p. 504 (compiled).

OGILBY, Edible Fish. New South Wales, 1893, pp. 99, 101, 102.

WAITE, Rec. Australian Mus., vol. 4, 1902, p. 190. - STEAD, Fishes of
Australia, 1906, p. 111, (New South Wales; Tasmania; Proc. Linn. Soc.

New South Wales, vol. 30, 1906, p. 574; Edible Fish. New South Wales,

1908, p. 65, pl. 35. - MC CULLOCH, Zool. Res. Endeavour, pt. 1, Dec.

22, 1911, p. 61 (Flinders Island, Murray River, Investigator Group);

Cat. Fish. New South Wales, vol. 1, pt. 7, 1919, p. 51, pl. 21, fig.

184d. - WAITE, Rec. South Australian Mus., vol. 2, No. 1, Apr. 23,

1921, p. 101, fig. 153. - MC CULLOCH, Fishes New South Wales, ed. 2,

1927, p. 51, pl. 21, fig. 184d.

Sillago maculata (part) GÜNTHER, Cat. Fish. Brit. Mus., vol. 2, 1860, p.

245 (Sydney). - CASTELNAU, Proc. Zool. Acclimat. Soc., Victoria, vol.

1, 1872, p. 94 (Melbourne). - DAY, Fishes of India, pt. 2, 1873, p.

265. - JOHNSTON, Proc. Roy. Soc. Tasmania, 1883, p. 116. - LUCAS,

Proc. Roy. Soc. Tasmania, new ser., vol. 2, 1890, p. 26 (copied).

WAITE, Mem. Australian Mus., vol. 4, 1890, p. 109.

Sillago ciliata (not CUVIER) JOHNSTON, Proc. Roy. Soc. Tasmania, 1883,

pp. 80, 116.

Depth $4\frac{7}{8}$; head $3\frac{1}{5}$, width $2\frac{1}{10}$. Snout $2\frac{2}{5}$ in head; eye $4\frac{3}{5}$,
 $1\frac{4}{5}$ in snout, $1\frac{1}{8}$ in interorbital; maxillary reaches $1\frac{3}{4}$ in snout, 4 in

head; teeth villiform, in broad bands in jaws and on vomer; interorbital $4\frac{1}{8}$,
slightly elevated and largely broadly convex; preopercle edge weakly and
minutely denticulate. Gill rakers 4 + 12, lanceolate, $1\frac{2}{3}$ in gill filaments
or $2\frac{1}{4}$ in eye.

Depth $4\frac{1}{6}$ to $5\frac{1}{4}$; head $3\frac{3}{4}$ to $3\frac{7}{8}$, width $1\frac{7}{8}$ to 2. Snout $1\frac{3}{4}$ to 3 in head; eye 7 to 8, 2 to $2\frac{1}{4}$ in snout, $1\frac{2}{5}$ to $1\frac{1}{2}$ in interorbital; maxillary reaches $\frac{7}{8}$ to or little beyond hind eye edge, expansion $1\frac{3}{4}$ to $1\frac{4}{5}$ in eye, length $1\frac{1}{2}$ to 2 in head; interorbital $3\frac{1}{5}$ to $3\frac{1}{3}$, broadly convex. Gill rakers 3 to 5 + 12 to 14, slender, little less than eye.

Corselet small, distinct, not extending beyond pectoral. Bases of soft dorsal, anal and caudal densely covered with minute scales, last with short longitudinal keel at base of each lobe. Lateral line slightly undulating, slopes down to keel of caudal peduncle.

D. XX to XXIV — II to IV, 12 to 14 +
 7 to 9, second spine $2\frac{2}{3}$ to $2\frac{3}{4}$ in
 head, first branched ray $2\frac{7}{8}$ to 3;
 A. II to IV, 11 to 13 + 7 or 8, first
 branched ray $2\frac{7}{8}$ to 3; upper
~~lobe~~ of caudal widely forked,
~~lower~~ upper lobe $1\frac{1}{3}$ to $1\frac{3}{5}$; least
 depth of caudal peduncle $9\frac{1}{4}$ to
 13; pectoral 2 to $2\frac{1}{5}$; ventral
 $3\frac{2}{5}$ to $3\frac{1}{2}$.

Back dark steel blue, numerous
 darker or slaty stripes downward
 and forward, extending little
 below lateral line. Seen from
 above as fish swims in water
 these appear as black V-shaped
 markings. Sides and lower
 surface of body silvery white.
 Iris white. Dorsal and caudal
 dark gray to slate, other fins
 pale.

Tropical and temperate Atlantic.
Reaches 761 mm.

A. N. S. P., No. 17080. Italy.
Bonaparte Collection (4). Dr. J. B.
Wilson.

Sarda orientalis (Schlegel)

306

Pelamys orientalis Schlegel, Fauna
Japonica, Poiss., pt. , (1844), p. 99,
pl. 52, (type locality, Nagasaki).

— Günther, Cat. Fish. Brit. Mus.,
vol. 2, 1860, p. 368 (copied); — Elera,

Cat. Fauna Filipinas, vol. 1, 1895, p. 506, (Luzon;
Cavite; Santa Cruz).

Thynnus orientalis Bleeker, Verh.
Batavia. Genoots. (Nal. Ichth. Japan),
vol. 25, 1853, p. 14, (reference).

— Boulenger, Proc. Zool. Soc. London,
1889, p. 240, (muscat).

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789

Scales 69 or 70 in lateral line to caudal base and 5 to 8 more on latter; 5 or 6 above, 10 below, 33 to 38 predorsal forward midway in antero-nasal region of snout; 4 or 5 rows of scales on cheek below eye to preopercle ridge; caudal finely scaled basally, also other fins with small scales. Scales with 5 or 6 basal radiating striae; 52 to 71 apical denticles, with 9 to 11 transverse series of basal elements; circuli fine.

fol lit
D. XI-I, 21, I, second spine $1\frac{3}{5}$ in head, first branched ray $2\frac{1}{4}$; A. III, 23, I, first branched ray 4; caudal $1\frac{1}{2}$ to $1\frac{3}{5}$, slightly emarginate behind; least depth of caudal peduncle 3 to $3\frac{1}{8}$; pectoral $1\frac{1}{2}$ to $1\frac{3}{5}$; ventral $1\frac{7}{8}$ to 2, spine and first ray broadly cartilaginous or osseous terminally.

swarthy
Brown, paler to whitish below and in alcoholic examples with a *swarthy* or general dusky appearance. An underlaid silvery-gray lateral axial streak, little below axial line at first, though embracing lateral line at caudal peduncle. Iris gray, with pale yellowish brown tinge. Fins with most membranes transparent. Spinous dorsal with dusky to blackish dots terminally. All fins with some dark dots on longest rays, more or less terminally.

East Indies, Philippines. A slender species, unique in the expanded front outer edges of the ventrals, so well shown in Bleeker's figure. Bleeker mentions it as rare, he having but three specimens 134 to 224 mm. long. The following are all in the National Museum.

fe 21071 to 21073. # Abuyag, Leyte. July 26, 1909. Length 174 to 242 mm.

3 examples. □ Beach near anchorage off Daet, Luzon. June 15, 1909. Length 165 to 190 mm.

Scarda orientalis Jordan and Snyder,
Annotat. Zool. Japon., vol. 3, 1901, p.
64 (Tokyo; Nagasaki).

— Kishinouye, Sui. Gak. Ho, vol. 1,
1915, p. 12, pl. 1, fig. 7; Journ. College
Agric. Tokio, vol. 8, pt. 3, ^{March} 1923, p.
424, figs. 11, 17, 33, 42 (Kyushu,
Aomori - ken); — Jordan and
Hubbs, Mem. Carnegie Mus., vol. 10,
no. 2, June 27, 1925, p. 215 (reference).

— Norman, Ann. Mag. Nat. Hist.,
ser. 9, vol. 9, p. 321, 1922 (Katal).

— Anonymous, Ill. Jap. Aquat. Animals,
vol. 1, pl. 25, fig. 5, 1931.

Scarda (Pelamys) chilensis var. orientalis
Steindachner and Döderlein, Denks.
Abad. Wiss. Wien, math.-naturh. Kl., vol.
49, ^{pt. 1,} p. 179, 1885 (Tokio).

aquila, Cheilodipterus, 407.

Sciaena, 368, 400.

arge, Upeneoides, 338.

Upeneus, 320, 335, 338.

argentata, Corvina, 394.

Corvula, 369, 370, 394.

Sciaena, 394.

argentatus, Johnius, 373, 394.

Sparus, 394.

argentea, Corvina, 393.

Sciaena, 393.

argenteus, Lethrinus, 7, 63.

Otolithes, 354, 355.

Otolithus, 355.

argyrea, Cichla, 246.

Sciaena, 246.

argyreum, Xystaema, 247.

argyreus, Diapterus, 247.

Gerres, 228, 242, 246, 247.

Argyrops, 64, 143.

bleekeri, 144.

edita, 144.

longifilis, 144.

spinifer, 143, 144.

spinifera, 144.

Pelamys lineolata Girard, Pac. R.R.
Survey, vol. 10, 1858, p. 106,
(type locality, San Diego, California).

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790

Genus Sillaginodes Gill

Sillaginodes GILL, Proc. Acad. Nat. Sci. Philadelphia, 1861, p. 504.

(Type Sillago punctatus CUVIER, orthotypic.)

Isosillago MACLEAY, Proc. Linn. Soc. New South Wales, vol. 3, 1879, p. 34.

(Type Isosillago maculata MACLEAY, monotypic.)

Body elongated, scarcely compressed, back and abdomen more or less convex or rounded. Head elongate, conic, compressed, gradually narrowed forward. Eyes moderate, nearly median. Mouth small, jaws even or lower shorter. Scales very small, 170 in longitudinal row. First dorsal slopes down backward, margin straight or convex, spines 12; second dorsal longer, with spine and 26 rays. Anal with slender spine and 22 rays. Caudal emarginate. Ventral with slender spine.

Known by its very small scales and unequal rays of soft dorsal and anal. One species in Australia.

Sillaginodes punctata (Cuvier)

Sillago punctata CUVIER, Hist. Nat. Poiss., vol. 3, 1829, p. 413, (Port King George). - QUOY and GAIMARD, Voy. Astrolabe, Zool., vol. 3, 1834, p. 671, pl. 1, fig. 1 (Port King George). - GÜNTHER, Cat. Fish. Brit. Mus., vol. 2, 1860, p. 245 (Hobson's Bay; South Australia). - CANESTRINI, Arch. Zool. Anat. Fisiol. Genova, ser. 2, vol. 1, 1869, p. 151 (Australia). - SCHMELTZ, Cat. Mus. Godeffroy, vol. 4, 1869, p. 16 (Australia). - CASTELNAU, Proc. Zool. Acclimat. Soc. Victoria, vol. 1, 1872, p. 93 (Melbourne); London Internat. Exhib. Cat., 1872, p. 132

Sarda velox Week and Hildebrand,
Field Mus. Pub. no. 215, Zool. ser.
vol. 15, pt. 1, pp. 318, 320, pl. 24,
December 20, 1923 (type locality,
Panama City, Panama).

Sarda chilensis (not Cuvier)
Fowler, Ann. Natal Mus., vol.
5, pt. 2, p. 254, January 1925
(Durban); vol. 7, pt. 3, p. 416,
October 1934 (Durban) ~~specimen~~.

Sarda chilensis McCulloch, Mem.
Austral. Mus., No. 5, pt. 2, p. 264,
September 10, 1929 (part).

6 examples [D. 5360]. Corregidor Light,
N. 74° W., 6.9 miles ($14^{\circ}21'N.$, $120^{\circ}41'E.$),
Manila Bay, Luzon. In 12 fathoms.

February 7, 1909. Length 62 to 105 mm.

1 example [D. 5131]. Island off
Panabutan Point, N. 20° E., 0.4 mile,
Sulu Sea off western Mindanao.
In 27 fathoms. February 6, 1908.
Length 65 mm.

4466 [D. 5235]. Hagubut Island, S. 58°
W., 7 miles ($9^{\circ}43'N.$, $125^{\circ}48'15''E.$),
Pacific coast, east coast Mindanao.
In 44 fathoms. May 9, 1908. Length
120 mm.

5 examples [D. 5442]. San Fernando Point
Light, N. 39° E., 8.4 miles ($16^{\circ}30'36''N.$,
 $120^{\circ}11'06''E.$), west coast Luzon.
(May 10, 1909. In 45 fathoms. Length
73 to 112 mm.)

Depth $4\frac{1}{2}$; head $2\frac{3}{4}$, width $2\frac{1}{2}$.
 Snout $2\frac{1}{4}$ in head; eye $4\frac{1}{6}$, $1\frac{3}{4}$
 in snout, $1\frac{2}{5}$ in interorbital;
 maxillary reaches hind eye edge,
 length $1\frac{1}{2}$ in head; interorbital
 $3\frac{1}{5}$, low, nearly level. Gill
 rakers $1+9$, $\frac{1}{4}$ of gill filaments,
 which $1\frac{2}{5}$ in eye.

Lateral line high along back
 at first, makes rather abrupt
 drop below front of soft dorsal
 to median axis of tail, then
 straight to caudal base.

D. XIV - $10+7$, second spine $2\frac{7}{8}$
 in head, soft fin damaged; A.
 $11+6$; caudal 2, deeply forked;
 least depth of caudal peduncle
 11 ; pectoral $3\frac{1}{4}$; ventral $3\frac{1}{2}$,
 rays I, 5.

Back brown, sides and below
 silvery white. Iris white. Fins all

Follow - Incl Caps
8 pt. Leaded

765

Arripis georgianus (Valenciennes) ← c. 1129

134789

796

Centropristes georgianus VALENCIENNES, Hist. Nat. Poiss., vol. 7, 1931, p. 451, (Port Western, New Holland) - RICHARDSON, Ichth. Voy. Erebus and Terror, 1844-1848, p. 117, pl. 54, figs. 3-6 (Southeastern and southwestern coasts of Australia, Norfolk Island, Port Jackson, King George's Sound).

Arripis georgianus JENYNS, Zool. Voy. Beagle, Fish, 1840, p. 14 (King George's Sound). - GÜNTHER, Cat. Fish. Brit. Mus., vol. 1, 1859, p. 253 (Holdfast Bay, South Australia; Houtman's Abrolhos; Hobson's Bay; Port Jackson). - BLEEKER, Versl. Meded. Akad. Wet. Amsterdam, vol. 15, 1863, p. 446 (Port Jackson). - GÜNTHER, Ann. Mag. Nat. Hist., ser. 3, vol. 20, 1867, p. 58 (Port Jackson, Hobson's Bay, Holdfast Bay, Houtman's Abrolhos). - CANESTRINI, Arch. Zool. Anat. Fisiol. Genova, ser. 2, vol. 1, 1869, p. 151 (Australia). - CASTELNAU, Proc. Zool. Acclimat. Soc. Victoria, vol. 1, 1872, p. 52 (Melbourne market); London Internat. Exhib. Cat. Victoria, 1872, p. 22 (Victoria). - KLUNZINGER, Sitz. Ber. Akad. Wiss. Wien, Math.-Nat. Kl., vol. 80, pt. 1, 1879, p. 347 (Port Philip, Hobson Bay, King George's Sound). - MACLEAY, Proc. Linn. Soc. New South Wales, vol. 5, 1881, p. 350 (West and South Australia, Victoria, New South Wales?). - MC COY, Prodromus Zool. Victoria, Dec. 19, 1889, pl. 184 (belly wrongly colored). - STEAD, Fishes of Australia, 1906, p. 117. - WAITE, Rec. South Austral. Mus., vol. 2, No. 1, Apr. 23, 1921, p. 105, fig. 161. - MC CULLOCH, Fishes New South Wales, vol. 2, 1927, p. 55.

pale brown.

Japan Sea. Reported from the Philippines by Elera. Flesh soft and of inferior quality. Lives rather near the surface of coastal waters and sometimes in large shoals. Bites eagerly on natural or artificial bait.

Follow-Incl Caps
Loaded

764

134789

795

Homodon BARNEVILLE, Rev. Zool., 1847, p. 133. (Type Centropristes
georgianus VALENCIENNES, monotypic.)

Body oblong or ellipsoid, deepest at spinous dorsal. Head pointed, compressed. Snout moderate. Eyes moderate or small. Maxillary small. Mandible protruding. Jaws with broad band of fine teeth, narrowing laterally, patch on vomer and band on each palatine. Tongue smooth. Two nostrils, close together, each side of snout. Opercle with 2 short spines. Branchiostegals 7. Pyloric coeca 17 to 75. Scales minutely ciliated. Upper surface of head and suborbitals naked, cheek and maxillary scaly. Small scales form sheaths along dorsal and anal bases. Lateral line parallel with profile of back. Dorsal with 9 slender spines, higher than 14 to 18 rays of soft fin. Anal with 3 small graduated spines, lower than 9 or 10 rays of soft fin. Caudal deeply forked. Ventrals inserted slightly behind pectoral bases.

Food fishes of small or moderate size, sometimes appearing in great schools and of interest to anglers. Jenyns proposed the generic name chiefly on scale structure. He describes the scales as having "instead of the usual fan of diverging striae on their basal portions, a triangular space filled up by a number of extremely fine, closely approximating striae, parallel to each other, and also parallel to the basal margin, which is cut quite square and entire". This led him to form the name from a (without) and flabellum or fan.

Analysis of species ← S.C.

a¹. Dorsal rays 13 or 14

a². Dorsal rays 15 to 17

georgianus H

trutta H

U. S. N. M., No. 59638. Kochi³¹²
near Urado, Japan. Dr. H. M.
Smith. Length 75 mm. As Cybius
commersonii.

134789

797

Depth 3; head 4. Snout $3\frac{7}{8}$ to $4\frac{1}{2}$ in head from snout tip; eye $4\frac{2}{5}$, $1\frac{1}{5}$ to $1\frac{1}{4}$ in snout; maxillary reaches half way in eye, expansion 2 to $2\frac{1}{5}$ in eye, length $2\frac{1}{3}$ to $2\frac{2}{5}$ in head from snout tip; interorbital convex.

Scales 53 in lateral line to caudal base and 9 more on latter; 6 (5 show on figure) above, 12 below, 6 rows on cheek. Scales with more or less complete fine circuli; 37 minute apical marginal points show on figure, with imperfect submarginal row.

hol lit D. IX, 14, fourth spine $1\frac{7}{8}$ in total head length, first ray $2\frac{3}{5}$; A. III, 10, first ray $2\frac{2}{5}$, caudal $3\frac{2}{3}$ in combined head and body to caudal base, deeply forked; least depth of caudal peduncle $2\frac{3}{5}$ in total head; pectoral $1\frac{4}{5}$; ventral $1\frac{9}{10}$.

Top of head dark olive to level of eye, with paler extension around eye. Top of snout of both jaws, blackish. Back dark olive gray with bronze and steel blue reflections. Sides gradually lighter to ventral edge. Rather more than $\frac{1}{3}$ of each scale in longitudinal rows darker and more olive than lighter gray interval, form 16 or 17 longitudinal stripes, fainter towards belly. Cheeks pearly, with bronze reflections on opercle, upper hind edge and spot about middle of front edge darker. Throat and maxillary white. Iris bronze, yellowish and green. Fins light gray, speckled with black, dorsal and anal flecked with blackish with imperfect narrow blackish edge to dorsal. Caudal blackish olive, hind margin and tips blackish. Pectoral dark. Ventral nearly colorless. Length 406 mm. (McCoy.)

New South Wales, Victoria, South and Western Australia.

Genus Gasterochisma Richardson

Gasterochisma Richardson, Ann. Mag. Nat. Hist., vol. 15, (May 1845) p. 346, (Type Gasterochisma melampus Richardson, monotypic.)

Lepidothyrmus Günther, Rep. Voy. Challenger, vol. 31, (1889) p. 15, (Type Lepidothyrmus huttonii Günther, monotypic.)

Chenogaster Lahille, Ann. Mus. Buenos Aires, ser. 3, vol. 2, p. 376, 1903. (Type Chenogaster holmbergi Lahille, monotypic.)

Body moderately long, rather well compressed. Head moderate. Snout large, conic. Eye small, but slightly advanced in head, lateral. Mouth large. Maxillary free terminally, reaches below eye. Teeth in jaws uniserial, small, conic, in patches on vomer and palatines. Gill arches with numerous small teeth, none on tongue. Scales moderate, cycloid, cover whole body and on head cheeks and postorbital region. Pyloric caeca numerous. Dorsal fins contiguous, spinous part with 17 long flexible spines. Anal low, short. Behind dorsal and anal 6 or 7 finlets. Caudal peduncle slender, with 2 lateral keels each side. Pectoral

short. Ventral variable,
sometimes very large and wide,
fold in groove along belly
which extends from ventral
bases to vent.

One species.

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Gasterochisma melampus Richardson

Gasterochisma melampus Richardson,
Ann. Mag. Nat. Hist., vol. 15, ^{May} 1845, p. 346, (type locality, Port
Nicholson, New Zealand; Voyage
Erebus and Terminus, Ichth., 1844-46,
p. 60, pl. 37, figs. 1-3, 1844-1846
(type)).

— Günther, Cat. Fish. Brit. Mus., vol.
2, (1860) p. 387, (type). — Stead,
Addit. Fish fauna New South
Wales, no. 1, p. 21, pl. 6, 1907. — Waite,
Trans. New Zealand Inst., vol. 45,
p. 220, pl. 8, 1913.

— McCulloch, Fishes New South Wales,
ed. 1, (1919) p. 104, pl. 33 f. 287, —
Barnard, Ann. South Afric. Mus.,
vol. 21, pt. 2, p. 804, pl. 30, fig. 3, October 1927
(Table Bost). — McCulloch, Mem. Austral. Mus.,
no. 5, pt. 2, September 10, (1929) p. 265,
(reference).

Lepidothynnus huttoni Günther, Rep.
Voy. Challenger, vol. 31, (1889) p. 15, pl.
6, figs. a-a', (type locality, Lyttelton,
New Zealand).

Chenogaster holmbergi Lahille,
An. Mus. Nac. Buenos Aires,
ser. 3, vol. 2, p. 376, 1903 (type
locality, Buenos Aires);
ser. 3, vol. 4, p. 461, 1905.

Chenogaster boulengeri Lahille,
An. Mus. Nac. Buenos Aires,
vol. 24, p. 7, pls. 3-4, text figs. 2,
1913 (type locality, Buenos
Aires).

W. H. D. C.

Follow Lit

Underscored figs. case 18.

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Aptodon sulcatus, 192.

Depth $3\frac{1}{2}$ to $3\frac{3}{4}$; head 4.

Snout $2\frac{2}{5}$ in head from snout tip; eye $6\frac{1}{4}$ to 7, $2\frac{1}{2}$ to 3 in snout; maxillary reaches $\frac{1}{2}$ in eye, length $2\frac{1}{10}$ in head from snout tip; interorbital very high, elevated.

Scales 80 in lateral line; 8 or 9 above, 15 or 16 below.

D. XVII, 10 or 11 + 6 or 7, soft dorsal lobe $2\frac{2}{3}$ in total head; A. II, 10 + 6 or 7, lobe $2\frac{4}{5}$; caudal 1, widely lunate; pectoral $1\frac{1}{3}$ to $1\frac{3}{4}$; ventral $2\frac{1}{2}$ to 8.

Bluish black above, silvery white below. Ventrals black.

Reaches 1650 mm ($5\frac{1}{2}$ feet).

(Barnard.)

vol. 33, 1901, p. 752 (Tokyo?, Hondo,
 Kinshin). ¹/₂ Jordan and Starbuck,
 Proc. U. S. Nat. Mus., vol. 32, 1907, p. 498,
 fig. 5 (Wakamoura, Tokyo, Yokohama,
 Nagasaki, Misaki, Tsuruga). ¹/₂ Franz,
 Abhandl. Kon. Bayer. Akad. Wiss.,
 vol. 4, suppl. band 1, 1910, p. 47
 (Aburatsubo). ¹/₂ Jordan and Thompson,
 Proc. U. S. Nat. Mus., vol. 41, 1912, p. 589,
 fig. 12 (Tsuruga, Akume, Wakamoura,
 Tokyo, Yokohama, Misaki, Nagasaki).
¹/₂ Snyder, Proc. U. S. Nat. Mus., vol. 42,
 1912, p. 415 (Misaki, Akume, Kagoshima,
 Tanegashima). ¹/₂ Jordan and Thompson,
 Mem. Carnegie Mus., vol. 6, no. 4, Sep.
 1914, p. 258, fig. 30 (Misaki, Osaka).
¹/₂ Izuka and Matsuura, Cat. Zool. Spec.
 Tokyo Mus., Vertebr., 1920, p. 148
 (Tokushima, Iwa). ¹/₂ Jordan and
Hubbs, Mem. Carnegie Mus., vol. 10, no. 2,

South Africa, New South
Wales, Tasmania, New Zealand,
Argentina.

Girella punctata Gray ^{Cass 129}

Girella punctata Gray, Illustrations
Indian Zool. Haradwiche, vol. 2,
1833, p. 98, pl. , figs. 3-4. India.
¹/_m Günther, Cat. Fishes Brit. Mus.,
vol. 1, 1859, p. 427 (China Seas, China,
type, Japan). ¹/_m Steindachner and
Döderlein, Abhscr. Akad. Wiss.
Wien, math.-naturh. Classe, vol. 47,
~~1883, p. 231~~; vol. 48,
1884, p. 21 (Tokyo). ¹/_m Nyström,
Svenska Vet. Akad. Handlingar,
Stockholm, 1887, vol. 13, pt. 4, no. 4,
p. 15 (Nagasaki). ¹/_m Elera, Cat. Fauna
Filipinas, vol. 1, 1895, p. 481 (Luzon,
Cavite, Santa Cruz). ¹/_m Ishikawa and
Matsuura, ^{Prelim.} Cat. Fishes. Tokyo Mus.,
1897, p. 53. ¹/_m Jordan and Snyder,
Annot. Zool. Japon., vol. 3, 1901, p. 80
(Yokohama); Proc. U. S. Nat. Mus.,

320

Genus Acanthocybium Gill

Acanthocybium Gill, Proc. Acad.
Nat. Sci. Philadelphia, vol. , (1862),
pp. 125, 126, (Type Cybius sara
Bennett = Cybius solandri Cuvier,
orthotypic.)

Body elongate, fusiform, more
or less compressed. Head very
long, slender, pointed. Snout long.
Mouth cleft reaches eye. Hind
part of maxillary shielded by
preorbital. Premaxillaries
extended in front. Teeth triangular,
sharp, ovate or truncate, close set.
Villiform teeth on vomer and
palatines. No gill rakers. Gill
filaments form network basally.
Vertebral 54 to 66, - of which 31 to
34 caudal. Scales small, narrow,
scarcely form corselet. Scales
along dorsal bases enlarged,

lanceolate. Caudal keels strong. 321
Dorsal long, spines 25. Caudal
forked.

Pelagic carnivorous fishes,
living in tropical and
subtropical seas and reaching
about two meters in length.

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Acanthocybium solandri (Cuvier)

Cybium solandri Cuvier, Hist. nat. Poiss., vol. 8, (1831, p. 141, no type locality). — Günther, Cat. Fish. Brit. Mus., vol. 2, (1860, p. 370, (copied); Journ. Mus. Godeffroy, vol. 5, pt. 11, (1876, p. 153, pl. 94) (Thrum Cap Island, Pomotus; Hervey Islands).

Acanthocybium solandri Jordan and Snyder, Annot. Zool. Japon., vol. 3, (1901, p. 65, (reference)). — Jenkins, Bull. U. S. Fish Comm., vol. 22, (1902 (1903), p. 441, (Honolulu)). — Snyder, Bull. U. S. Fish Comm., vol. 22, (1902 (1904), p. 523, (Honolulu)).

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— Jordan and Evermann, Bull. U. S.
Fish Comm., vol. 23, pt. 1, 1903 (1905),
p. 176, (copied). — Kishinouye,
Dobutsu. Zass., vol. 20, (1908), p. 2, pl.
2, fig. 2, — Snyder, Proc. U. S.
Nat. Mus., vol. 42, (1912), p. 410,
(Misaki).

— Jordan and Jordan, Mem. Carnegie
Mus., vol. 10, no. 1, (Dec. 1922), p. 34,
(Honolulu). — Kishinouye, Journ.
College Agric. Tokyo, vol. 8, no. 3,
(March 1923), p. 411, figs. 10, 31, 39 (Tokyo,
Bay mouth, Shimano-ken,
Kofuto-fu, Chosen, Kyushu,
Ogasawara Island, Hachijoshima).
— Fowler, Mem. Bishop Mus., vol. 10,
(1928), p. 135, (Honolulu); vol. 11, no. 5, 1931,
p. 325, (Honolulu). — Anonymous,
Ill. Jap. Aquat. Animals, vol. 1, pl.
27, fig. 4, 1931. — Deraniyagala, Ceylon Journ.
Sci., vol. 18, pt. 1, p. 45, pl. 1, fig. 2, text fig. 4
(subcutaneous corselet), Dec. 22, 1933 (Ceylon).

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Cybius petus Poey, mem. Hist. nat.
Cuba, vol. 2, (1860), p. 234, pl. 16, fig. 1,
 (type locality, Havana).

Cybius varany Döderlein, Giorn.
Sci. nat. Ed. Econ., ~~vol. 8~~, ~~1872~~, p.
 1872 (type locality, Palermo).

Cybius commersoni (not
Döderlein, Giorn. Sci. nat. Ed. Econ.,
 vol. 8, pl. , fig.

Acanthocybius forbesi Seale,
Philippine Journ. Sci., vol. 7, (1912), p.
 283, (type locality, ↑

to be filled in by author

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Scomber lanceolatus (Solander) Cuvier,
Hist. nat. Poiss., vol. 8, (1831) p. 141,
(name in text).

Cybius sara Lay and Bennett, Voy.
Blossom, Beechey, (1839) p. 63, pl. 28,
fig. 2 (type locality, Loo Choo). —
Günther, Cat. Fish. Brit. Mus.,

vol. 2, (1860) p. 373, (copied).

Jordan and Starks, Ann. Carnegie Mus., vol. 11, nos. 3-4,
1917 (Ceylon). —

Acanthocybius sara Jordan and
Hubbs, Mem. Carnegie Mus., vol. 10, no.
2, June 27, 1925, p. 213, (no locality).

— Fowler, Mem. ~~Carneg.~~ Bishop Mus.,
vol. 10, (1928) p. 135, (reference). —

Tanaka, Journ. Faculty Sci. Univ.
Tokyo, Zool., vol. 3, Pt. 1, p. 22,
November 4, 1931 (reference).

- macronemus, 128.
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Philippines, Riu Kiu, Japan, Polynesia, Hawaii. Also in the tropical Atlantic. Live active and very voracious fish living in most tropical seas. Under the name "wahoo" this fish has become the object of anglers. Apparently it does not move in large schools. Its food is smaller pelagic fish and large cuttles or squid. It readily takes a bait, either of cured or fresh fish and is caught by trolling. When freshly caught the fish is bright blue above or on its back, with 30 dark transverse streaks, most distinct in small or young fishes. Most of the fins are dark gray.

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U. S. N. M., No. 36941. Key West,
Florida. Dr. D. S. Jordan. Length
of skinned out fish 1140 mm.

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